Volume

1

Employment and
Immigration Canada

Emploi et
Immigration Canada

Job Futures

AN OCCUPATIONAL OUTLOOK TO 1995

1988-1989 EDITION

Volume One: Experience of Recent Graduates

Canadian Occupational
Projection System
COPS

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Minister of Employment
and Immigration

CANADA

Ministre de l'Emploi
et de l'Immigration

Message from the Minister of Employment and Immigration

It is my pleasure to present you with the second edition of the counselling handbook, Job Futures. This manual offers helpful information on current and future labour market conditions for a large number of occupations, together with data on the labour market experiences of past graduates.

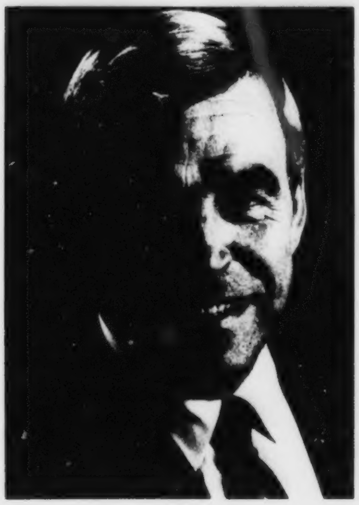
Job Futures was created by Employment and Immigration's Canadian Occupational Projection System (COPS), to provide counsellors with occupational information that they can use to provide better advice to Canadians on career choices, career changes, and future prospects.

This second edition of Job Futures reflects the growing scope of occupational labour market analysis undertaken by COPS to date and contains a large number of important additions to the handbook's first edition.

We are committed to helping Canadians, young and old, choose suitable and fulfilling careers. As well, we recognize that employers need well trained and motivated employees. I believe that the information in Job Futures addresses many of these concerns.

Many individual Canadians and associations have helped make this handbook possible. They reviewed the content and provided valuable comments in their area of expertise, and many of them are listed as sources of further information. To all of them, I express my thanks.

I am confident that you will find this new edition of Job Futures a valuable tool in making the occupational choices you face.



Benoît Bouchard
Minister of Employment and Immigration

Minister of State
Youth

Ministre d'État
Jeunesse

CANADA

Message from the Minister of State for Youth

What career should you choose? Each generation of young people has had to wrestle with this crucial decision. How do you translate your talents into a rewarding and promising career? How do you find the right job that challenges you and meshes with your aspirations?

The journey from the educational system to the job market has never been easy. It still isn't and probably never will be.

Career counsellors have had special problems of their own. Relevant labour market research has been hard to find, often making it difficult for them to advise young people and to help with critical decisions.

This publication can assist the counsellor by making available relevant labour market information that will help individuals make worthwhile career choices.

The federal government through the Ministry of State for Youth and the Department of Employment and Immigration Canada has been analyzing the recent job market and trends. Valuable information from this analysis has been incorporated into this publication.

I have been told by students and vocational guidance counsellors that the first edition of Job Futures was a very valuable source of information to assist in career choices. I have a commitment to helping young Canadians choose suitable and fulfilling careers, and this second edition of Job Futures maintains that commitment.

Whether you're a counsellor or a student, or someone interested in changing careers, Job Futures will give you an understanding of the choices in the job market today and where these jobs are probably going to be by 1995.

Jean J. Charest
Minister of State for Youth

Preface

Job Futures is a product of the Canadian Occupational Projection System (COPS), a labour supply and demand information and data bank designed by Employment and Immigration Canada.

The occupational information included in these publications includes projections based on information collected and analysed through the Canadian Occupational Projection System (COPS). Projections should be interpreted with caution since no one can say with certainty what the future has in store. These projections are not predictions of what will necessarily happen. Rather, they represent one possible path for occupational requirements.

Many trade associations, professional societies, unions and industrial organizations are able to provide valuable career information for counsellors and students. Some of these organizations are listed at the bottom of the statistical analysis for each occupational statement in Volume Two: *Occupational Outlooks*.

However, the listing of an organization does not constitute in any way an endorsement or recommendation — either of the organization or of the information it may supply.

This edition of *Job Futures* is the second in what is planned as a regular series of publications on career outlooks in Canada. It embodies the extent of COPS research to date. Those familiar with the first edition will find the information in this second edition substantially expanded and improved. To incorporate the additional data and new statistical presentations, this edition has been published in two separate volumes.

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Introduction

Volume One: Experience of Recent Graduates

Choosing a career or changing your line of work is a challenge, especially in these uncertain economic times. There are questions which need answers. What occupations can I enter with my educational background? What qualifications do I need to enter a specific occupation? What is the job market like? What jobs are sensitive to technological change? Where do the best opportunities for me lie?

Job Futures helps to answer these questions by providing valuable information on the educational system and on future occupational labour markets. *Job Futures* is designed for students and educational counsellors as well as for persons interested in changing careers or re-entering the labour market.

In addition to statistical information, *Job Futures* contains descriptive information on various features of occupational labour markets. Representatives of industry, labour, unions, provincial governments and education offered their special perspectives. The result is a comprehensive view of present and future labour market conditions.

Volume One of *Job Futures* concentrates on the link between the educational system and the labour market through the analysis of the labour market outcomes for graduates from some 100 fields of study at the post-secondary level. Volume Two provides information on the current and future labour market situations for specific occupations.

How Volume One Works

Volume One answers such questions as:

- What major field of study should I take to prepare best for a job in the occupation of my choice?
- What prerequisites do I need to be admitted to this field of study?
- In which provinces is this course offered?
- How long will it take me to graduate?
- Were recent graduates of this field of study able to find jobs when they graduated?
- What sorts of jobs did they find?
- What do past graduates think of their field of study and their current employment?
- Is it better for me to pursue post-graduate studies or to go job-hunting with an undergraduate degree?

Volume One is designed to help people make two kinds of decision about their future occupation: what to study and how to go about finding a job.

Decisions concerning education include:

- choosing the type of institution (trade/vocational, community college, university)
- choosing the level of education (career program, undergraduate, master's, doctorate)
- choosing the actual field of study.

Job-search strategy decisions include:
- evaluating job-prospects in a chosen occupation
- identifying the most promising occupations in which to look for a job
- learning from the experience of past graduates in the labour market.

Most often, these decisions are made by young people still in school. However, they are also being made by increasing numbers of adults returning to part-time or full-time studies.

Organization of Volume One

Volume One is organized by broad academic subject area and subsequently by major field of study, by institution and level of study. In all, it covers 36 major fields of study at the trade/vocational level, 42 at the community college level, 45 at the undergraduate university level, 41 at the university master's level and 23 at the doctorate level.

For each field of study, there is a statistical profile as well as a narrative providing information on the average duration of the program, the historical and projected numbers of graduates, the early labour market experience for these graduates and the major occupations in which they were employed two years after graduation. Such subjects as CO-OP education, part-time study, satisfaction with current employment, etc., are also discussed.

Please note that a major field of study, as given in the text, can incorporate many specific study areas. These are listed in the index of Volume One.

All occupations are classified according to the Standard Occupational Classification. The code numbers (such as 1132, 1171 etc.) following the occupation titles in the last section of the statistical profile for each field of study in Volume One, and preceding the occupation titles in the headings in Volume Two, as well as the occupation titles themselves, are those used by Statistics Canada in the coding of the Census and the Labour Force Survey. The first two digits of the code number indicate the general occupational field (for example, 11 corresponds to managerial occupations); the second two numbers indicate the specific occupation. (Thus, 1132 indicates managerial occupations generally and managers in social sciences specifically.) Altogether, *Job Futures*, Volume Two covers nearly 200 such occupational groups.

When you've found out which occupations correspond to the field of study you are interested in, check Volume Two which provides an overview of most, but not all, occupations as well as an indication of future prospects for the type of job in question.

It is important to note that, in Volume One, the sample occupations (as taken from the 1984 National Graduate Survey of post-secondary graduates) reflect a range of possible outcomes resulting from educational choices. They do not represent all the options. Not all the occupations listed for a field represent ideal or even appropriate short-term career goals for recent graduates. Rather, they reflect the job market realities over the 1982-1984 period. These occupations should provide guidance, but should not limit a graduate's creative job search.

Information Sources

Most of the information presented in Volume One is based on the 1984 National Graduate Survey of 1982 post-secondary graduates, the most recent available data. At that time, the 1981-1982 recession's negative impact on employment was over for a majority of industries but still present in the primary and secondary industries. Readers should keep in mind that these figures depict labour market conditions at that particular time. They should be used in conjunction with other occupational information.

Explanation of Terms Used in Volume One

Major Field of Study — See index of Volume One to find out about areas of study within each major field. These fields of study are based on Statistics Canada classifications.

Institution — trade/vocational, community college, university.

Level — The trade/vocational level includes pre-employment or pre-apprenticeship and skill upgrading courses lasting three months or more. It does not include block release apprenticeship training, Basic Training for Skill Development (BTSD), language training, Job Readiness Training (JRT).

The community college level includes Career Program, Hospitals and Schools of Nursing, Colleges d'enseignements général et professionel (CEGEP) and Teachers College graduates but excludes University Transfer Program graduates.

The undergraduate university level includes bachelor degrees and undergraduate diplomas and certificates.

The master's university level includes master's degrees and graduate diplomas and certificates.

The doctorate university level includes doctoral graduates.

Average Duration of Program — the duration as estimated from among survey respondents. This average may vary considerably across provinces.

Graduates — total number of full-time and part-time graduates over the entire calendar year. Data for 1971, 1977, 1981 and 1985 are historical figures while data for 1986 and 1995 are projections.

Graduates Not Entering the Labour Force (%) — the per cent of graduates of full-time studies who did not continue their education and did not enter the labour force.

Graduates Continuing Their Education (%) — the per cent of all graduates who were enrolled full-time six to nine months after graduation, at a post-secondary institution.

Part-time Students Already in the Labour Force (%) — the per cent of total graduates who were enrolled on a part-time basis in the final term of their program.

Graduates Entering the Labour Force (%) — the per cent of all graduates who were in the labour force two years after graduation.

Graduates Employed Full-Time (%) — the per cent of all graduates who were employed full-time two years after graduation.

Graduates Employed Part-Time (%) — the per cent of all graduates who were employed part-time two years after graduation.

Unemployed Graduates (%) — the per cent of all graduates who were in the labour force but not employed two years after graduation.

Occupational Distribution (%) — the per cent of the graduates in question who were employed full-time in the occupations listed two years after graduation.

Approximate average — the characteristic being described comes within one percentage point of the overall average.

Slightly less than or greater than average — the characteristic differs from the overall average by two to three percentage points.

Less (Lower) than or greater than average — the characteristic differs from the overall average by four to five percentage points.

Significantly less than or greater than average — the characteristic differs from the overall average by six to 10 percentage points.

Dramatically less than or greater than average — the characteristic differs from the overall average by more than 10 percentage points.

What *Job Futures* Can't Do

Job Futures provides a reasonable view of expected labour conditions in various occupational areas. However, it should not be treated as stand-alone career information but as a companion to other publications.

Job Futures does not provide complete information on training qualifications, full job descriptions or working conditions. To find out more about these, consult your nearest Canada Employment Centre, or refer to the *Canadian Classification and Dictionary of Occupations (CCDO); Occupational Qualifications Requirements,* (Information Canada); and the *Directory of Associations in Canada*, 5th ed. (Brian Land, editor).

An Employment and Immigration publication, *Careers Canada*, provides extensive descriptions of other aspects of occupations (i.e., qualifications and working conditions).

As well, Employment and Immigration Canada offers CHOICES, an interactive computer system that allows students to ask pertinent questions about career choices. For information on *Careers Canada* and CHOICES, contact a Canada Employment Centre or the Employment Support Services Branch, Employment and Immigration Canada, National Headquarters, Ottawa-Hull.

CHARACTERISTICS OF 1982 GRADUATES
(Summary Table)

	LEVEL				
	Trade/ Vocational	Community College	Under-graduate	Master	Doctor
• Average Duration of Program (Years)	10 months	2	3	2	4
• Graduates (1982)	55784	54081	86331	12125	1015
• Females (%)	43	57	52	41	28
• Average Age of Graduates (Years)	26	23	26	31	34
• Part-Time Graduates (%)	6	4	15	34	23
• Graduates Continuing Education (%)	7	11	18	7	4
• Grads Not Entering Labour Force (%)	6	3	6	6	3
• Grads Entering Labour Force (%)	81	82	61	53	69
• Grads Entering Labour Force Who Were Employed Full-Time (%)	64	80	79	85	88
• Grads Entering Labour Force Who Were Employed Part-Time (%)	11	10	11	7	5
• Grads Entering Labour Force Who Were Unemployed (%)	25	10	10	8	7
• Average Salary (1984$)	16000	18700	23800	33400	33600
• Grads Who Felt Current Job Directly/Partly Matches Major Field of Study (%)	64	84	82	90	95
• Grads Who Were Satisfied With Their Current Job (%)	85	88	87	91	92
• Grads Who Felt Over-Qualified For Current Job (%)	67	37	34	63	36
• Grads Who Would Make the Same Educational Choice (%)	62	63	70	80	78

Source: Derived from the 1984 National Graduate Survey of 1982 post-secondary graduates

Fields of Study

Applied Arts

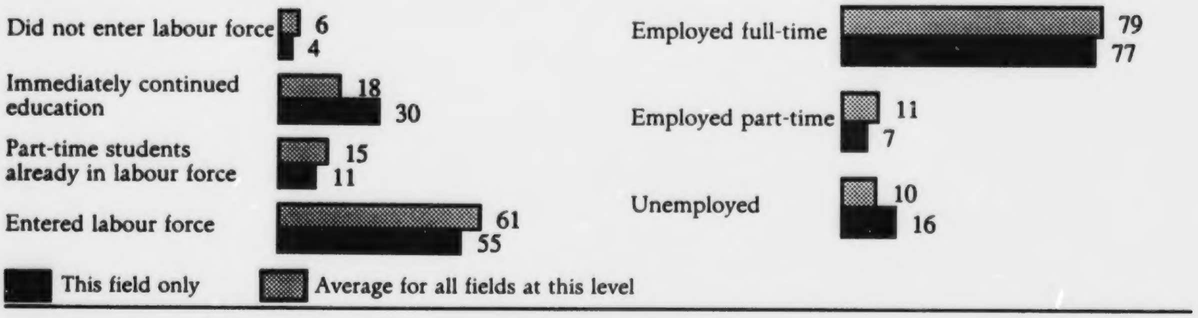
Arts

Undergraduate
University (3 years)

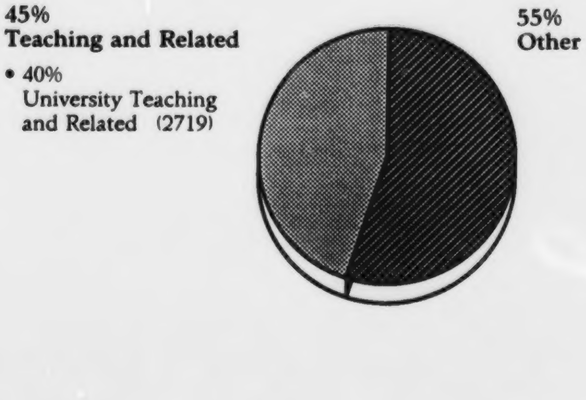
Graduate Trends and Projections

	1971	1981	1985	1986	1995
Number of Graduates	66	774	847	890	850
% of Total Undergraduate Degrees	0.1	0.8	0.7	0.7	0.7

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation



Applied Arts

Undergraduate
University (3 years)

All disciplines related to the Applied Arts — graphic arts, photography, drawing, interior design, industrial design, fashion design and ceramics — are included in this major field of study. Candidates usually must have a high-school diploma with emphasis on arts courses, must present a portfolio of their previous work and may have to be interviewed. In the province of Quebec, a Diploma of Collegial Studies in Fine Arts or Creative Arts is required. The duration of the program is, on average, three years. Some institutions offer diploma or certificate programs in this field, and all provinces, with the exception of Newfoundland and Prince Edward Island, offer a degree program. Women represent about 60% of the students enrolled in the Applied Arts program.

Graduate Trends and Projections

The number of graduates from this field of study increased significantly between 1971 and 1985. Since 1981, an annual average of about 850 students have graduated, compared to an annual average of about 375 during the 1970s. Applied Arts programs have also attracted more students than other fields over the same period. If this course remains popular, and the faculties can continue to absorb new students, some 900 students a year are expected to graduate from this course between 1987 and 1995.

Destination of Graduates

The 1982 Applied Arts graduates pursued further schooling to a much greater extent than other undergraduates, perhaps because, as indicated by their significantly higher-than-average unemployment rate, they were less successful in finding jobs than graduates in other fields.

Occupations

Applied Arts graduates who were employed full-time two years after graduation were working mostly in the teaching area, especially at the university level as assistants to university faculty members. These graduates face competition in the labour market from college graduates in Creative and Design Arts, Graphic and Audio-Visual Arts and Fine Arts and from university graduates in this field at the master's and doctorate levels.

The Course in Retrospect

A 1984 survey indicated that 1982 graduates from this field experienced a labour market transition roughly comparable to the average for this level. Although slightly fewer graduates than in other fields were satisfied with their job, they were more likely than other undergraduates to make the same educational choice if it had to be made again.

Commercial and Promotional Arts

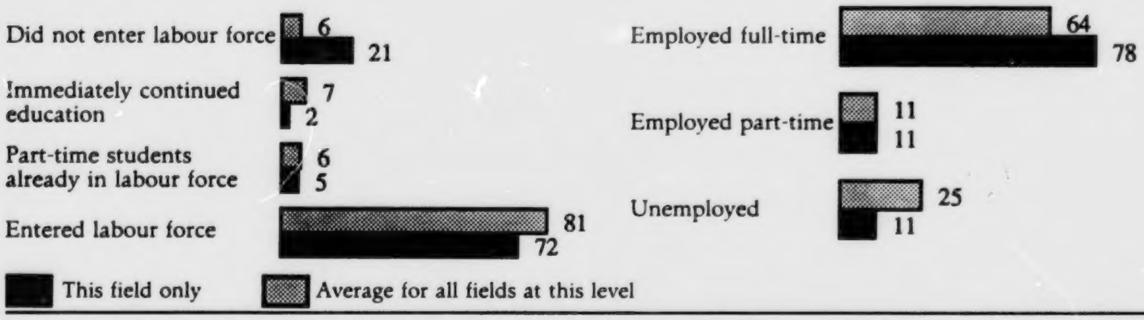
Trade/Vocational Programs
Public Trade Schools and Similar Institutions (9 months)

Graduate Trends

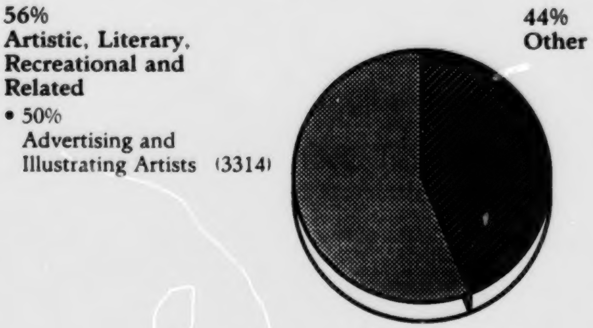
	1983-84*
Number of Graduates	181
% of Total Trade/Vocational Graduates	0.2

* This is the only period, since 1977, for which comprehensive and reliable data covering all provinces, territories and fields of study were available although still preliminary. Given this lack of historical data and the recent release of the data for 1983-84, no projections are yet available.

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation



Commercial and Promotional Arts

Trade/Vocational Programs
Public Trade Schools and Similar Institutions (9 months)

This field of study includes courses in advertising, modelling and commercial arts. The program prerequisites vary depending on the type of program (pre-employment or skill upgrading), the institution and the province where it is offered. However, a 1984 survey indicated that those who completed such a program had, on average, completed secondary school before enrolling. The program lasts approximately nine months and is offered in the provinces of Newfoundland, Ontario, Manitoba, Alberta and British Columbia. The average age of the graduates was 25, and there were slightly more women graduates than men.

Graduate Trends and Projections

There were 181 graduates in this program in 1983-1984, accounting for less than 1% of all successful trade/vocational completions. The number of completions in this field of study is expected to vary only slightly over the projection period.

Destination of Graduates

A lower-than-average proportion of these graduates entered the labour force upon completion of their program. Those who looked for a job not only had a better chance at employment than other graduates but also a better chance of being employed full-time.

Occupations

Of the graduates working full-time two years after graduation, more than half were employed in artistic and literary occupations, especially as advertising and illustrating artists. The rest were working in many different occupations in numbers too small to be reported.

The Course in Retrospect

Generally, Commercial and Applied Arts graduates employed full-time were more likely than others to be employed in jobs related to their course of study and to be satisfied with their job, although this may not necessarily be true for those who worked only on a part-time basis. A significantly greater-than-average proportion would make the same educational decisions again. College graduates in this field of study had more success in finding jobs than these graduates.

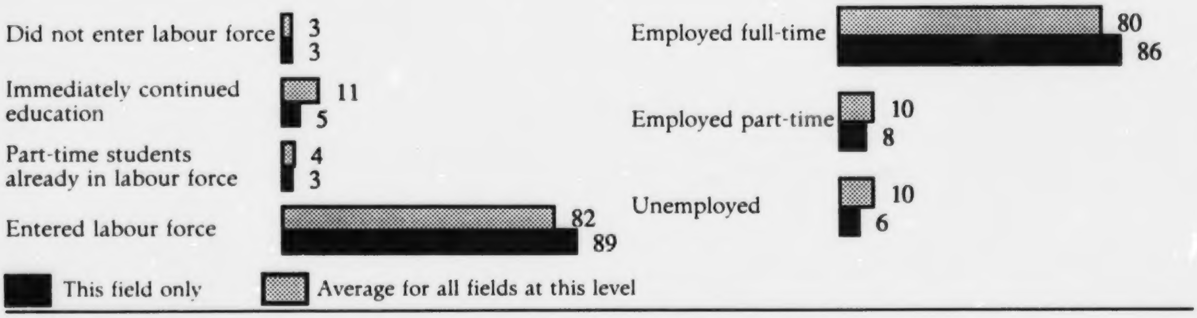
Commercial and Promotional Arts

Career Program
Community College (2 years)

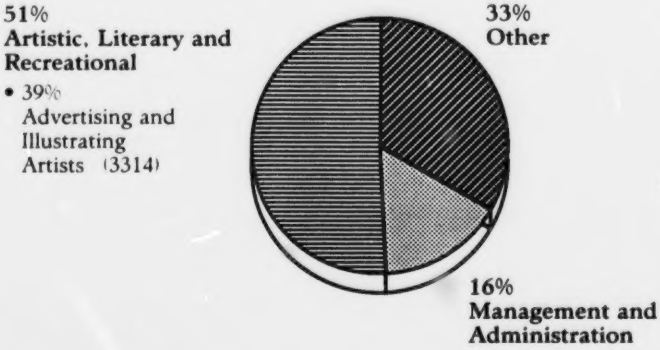
Graduate Trends and Projections

	1977	1981	1985	1986	1995
Number of Graduates	300	681	919	930	875
% of Total Community College Graduates	0.8	1.4	1.6	1.6	1.6

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation



Commercial and Promotional Arts

Career Program
Community College (2 years)

This field of study includes such areas as modelling, commercial arts and advertising and is offered in all provinces except Newfoundland, Nova Scotia, New Brunswick and Saskatchewan. The prerequisites for admittance vary from province to province and in some instances institution to institution, but in general, the applicant must have completed secondary school with a good standing in English and/or art, have a letter of recommendation, present a portfolio and pass an admissions test. As with the prerequisites, the duration of the program varies, but on average spans two years (six semesters). This field of study continues to be dominated by women, who made up 75% of the 1985 graduating class.

Graduate Trends and Projections

Enrollments, and thus graduations, depend upon the capacity of the specific faculty to absorb new students and upon the demands for entrance. Both these factors are influenced by the current labour market situation. Since 1981, the annual average number of graduates has been about 875. The popularity of this course, as reflected by its percentage of all community college graduates, increased significantly between 1977 and 1981, but has held fairly constant since that time. If the relative popularity of this course and the capacity of the faculty hold over the 1987 to 1995 period, about 900 students per year are expected to graduate.

Destination of Graduates

According to 1984 data, a significantly larger proportion of these graduates entered the labour force than graduates from other fields of study, indicating that they were less likely to continue their formal training after graduation than graduates from other sources. In addition, their success in finding employment was also much greater than that of other community college graduates.

Occupations

Commercial and Promotional Arts graduates who were employed two years after graduation were mostly working as advertising and illustrating artists in the business services or printing, publishing and allied industries. Graduate advertising and illustrating artists generally were in competition with trade/vocational graduates from a similar course, other college graduates from graphic and audio-visual arts programs and bachelor's graduates with degrees in applied arts or mass communication. The remainder of these graduates were employed full-time in other artistic or literary occupations or in the management group of occupations.

The Course in Retrospect

Although the majority of Commercial and Promotional Arts graduates were employed full-time two years after graduation, the 1984 survey indicated that significantly fewer of these graduates than other college graduates were satisfied with their current employment, and a dramatically greater-than-average proportion considered themselves over-qualified for their job. In spite of these numbers, a greater-than-average proportion would select the same educational program if they had to make the choice again.

Creative and Design Arts

Arts

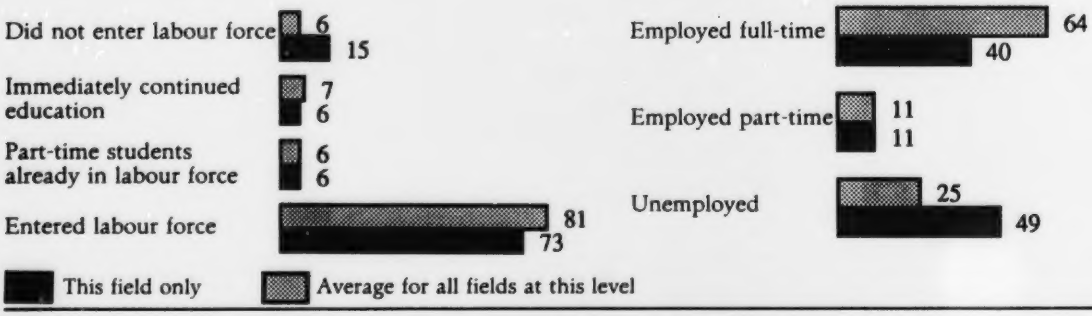
Trade/Vocational Programs
Public Trade Schools and Similar Institutions (6 months)

Graduate Trends

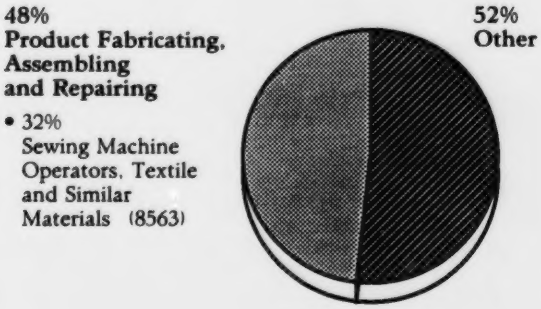
	1983-84*
Number of Graduates	262
% of Total Trade/Vocational Graduates	0.3

* This is the only period, since 1977, for which comprehensive and reliable data covering all provinces, territories and fields of study were available. Given this lack of historical data and the recent release of the data for 1983-84, no projections are yet available.

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation



Creative and Design Arts

Trade/Vocational Programs
Public Trade Schools and Similar Institutions (6 months)

The Creative and Design Arts field of study is composed of programs related to fashion arts (custom dressmaking and alterations, fashion designing, sewing) and interior decorating. Those who were enrolled in this program in 1982 had, on average, some secondary education before taking the course. Although the prerequisites may differ, depending on the program, the institution and the province, it appears that a Grade 10 education was the minimum qualification required. The program is offered in all provinces except Prince Edward Island and Quebec and is about six months in duration. Students who completed the program in 1982 were marginally older than average, and approxiamately 80% of the graduating population were women.

Graduate Trends and Projections

In 1983-1984, there were 262 successful completions reported, representing less than 1% of the total trade/vocational completions. The number of completions should vary only slightly over the projection period.

Destination of Graduates

Fewer graduates from this field of study entered the labour force upon completion of their program than average. Job prospects were poor for those who looked for a job, and a significantly lower-than-average proportion found employment on a full-time basis.

Occupations

Two years after they completed their program, almost one-half of those employed full-time were working in occupations related to product fabricating, assembling and repairing occupations, especially as sewing machine operators. Other graduates were scattered across many different occupations in numbers too small to be reported.

The Course in Retrospect

In comparison to other graduates, those who found a full-time job had a better chance at working in an occupation related to their program of study and being satisfied with their current job although most felt over-qualified for it. An average proportion of these graduates would be ready to make the same educational choice again even though their early labour market experiences were less than favourable.

Creative and Design Arts

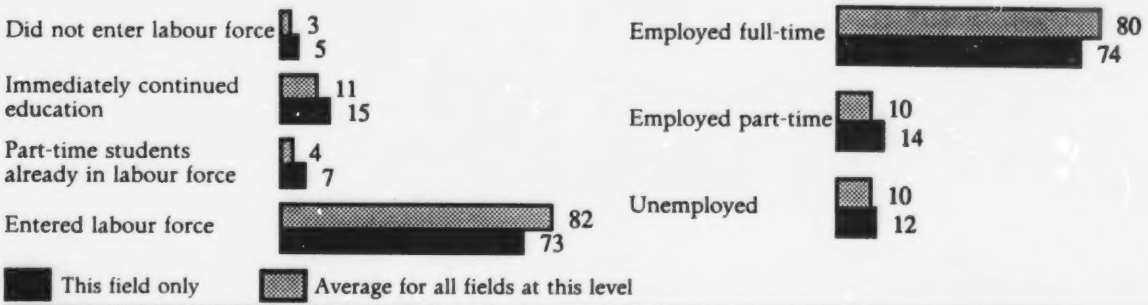
Arts

Career Program
Community College (3 years)

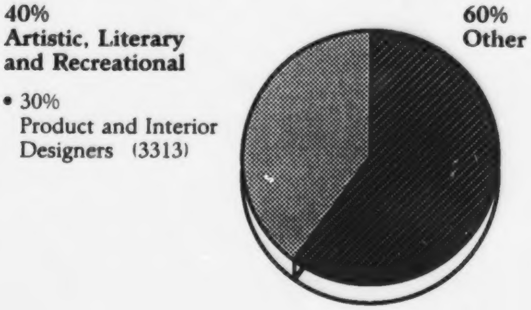
Graduate Trends and Projections

	1977	1981	1985	1986	1995
Number of Graduates	533	951	704	715	670
% of Total Community College Graduates	1.4	2.0	1.2	1.2	1.2

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation



Creative and Design Arts

Career Program
Community College (3 years)

The creative and design arts field of study includes such areas as jewellery design, fashion arts and interior decorating. The prerequisite for entrance may vary from institution to institution but, in general, the candidate must be interviewed, present a letter of recommendation and a portfolio of work, take a diagnostic English test and have passed senior English and mathematics, and one course in art or drafting. Creative and Design Arts is offered in all provinces except Newfoundland, Nova Scotia, New Brunswick, Manitoba and Saskatchewan. As with the prerequisites, the duration of the program may vary from one institution to the next, but in general, the course spans three years. This course is composed mostly of women (75%) and concentrated in the province of Quebec. In some institutions it is possible to take this course through a CO-OP program. According to 1984 data roughly 15% of graduates received their certificate or diploma in this manner.

Graduate Trends and Projections

Enrollments, and therefore graduations, depend on the capacity of the specific faculty to absorb new students and on the demand for entrance. Both these factors are partly influenced by the current and expected labour market situation. Since 1981, the annual number of graduates has been about 825. The popularity of this course, as reflected by its share of all community college graduates, rose between 1977 and 1981 but has been declining since then. If this course remains relatively popular and faculty capacities remain constant over the 1987 to 1995 period, about 675 students will graduate each year.

Destination of Graduates

A significantly smaller proportion of graduates from this field entered the labour force after graduation, than in other fields of study. The slightly higher-than-average unemployment rate may have been a negative influence on their decision to enter the labour force. As well, the proportion of graduates who were employed full-time was less than the average across all fields of study. Of those graduates not entering the labour force, slightly more than average continued their education.

Occupations

According to 1984 data, Creative and Design Arts graduates who were employed full-time two years after graduation were working mostly as designers in the Other Business Services industry. The remaining (employed) graduates were spread across various occupations with no significant concentrations occurring. Graduates of this course searching for jobs as designers primarily face job competition from university graduates with a bachelor's degree in Applied Arts.

The Course in Retrospect

In general, Creative and Design Arts graduates were not as pleased with their labour market experiences as other college graduates, with higher-than-average proportions dissatisfied with their present job. Many graduates felt that their current employment did not match their field of study and, slightly more than one-half of all employed graduates felt overqualified for the work they were doing. Despite the overall picture, 60% of these graduates, as opposed to 65% across all college fields of study, said they would choose the same course if they had to start again.

Fine Arts

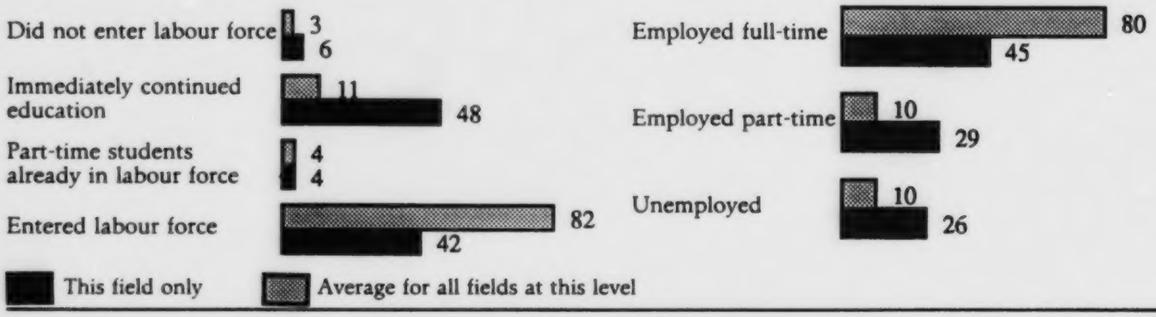
Arts

Career Program
Community College (2 years)

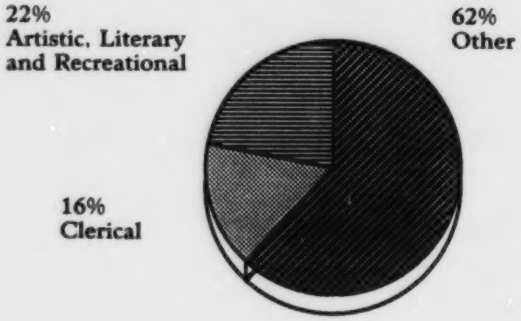
Graduate Trends and Projections

	1977	1981	1985	1986	1995
Number of Graduates	773	708	600	610	570
% of Total Community College Graduates	2.1	1.5	1.0	1.0	1.0

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation



Fine Arts

Career Program
Community College (2 years)

The Fine Arts field of study includes such areas of interest as dance, music, other performing arts, sculpting, painting and handicrafts. The prerequisites for entrance may vary from institution to institution but, in general, the candidate must audition, pass an interview, present a letter of recommendation and a portfolio, have some related experience and have completed advanced English courses at the high-school level. The course is offered in all provinces except Newfoundland, Nova Scotia, Manitoba and Saskatchewan. The duration of the program may vary from one institution to another but generally spans two years. In some institutions students may take this course through a CO-OP program. According to 1984 data, roughly 5% of graduates received their Certificate/Diploma in this manner. This course is composed mostly of women (70%) and is concentrated in the province of Ontario.

Graduate Trends and Projections

Enrollments, and therefore graduations, depend on the capacity of the specific faculty to absorb new students and on the demand for entrance. Both these factors are influenced, in part, by the current and anticipated labour market situation. Since 1981, the annual number of graduates has averaged 625. The popularity of this course, as reflected by its share of all community college graduates, declined significantly between 1977 and 1985. If the current popularity and the faculty capacities hold over the 1987 to 1995 period, about 575 students should graduate from this course each year. The number of new graduates competing for jobs is expected to be significantly lower in the projection period than between 1981 and 1985.

Destination of Graduates

A much smaller proportion of graduates in this field entered the labour force after graduation than those in other college fields of study. Not only was the proportion of graduates who were unable to find employment slightly greater than in other fields of study, but also the proportion who were employed full-time was dramatically lower. Almost 50% of Fine Arts graduates continued their education after graduation, a proportion almost five times that in other college fields of study.

Occupations

Fine Arts graduates who were employed full-time two years after graduation were working mostly in the artistic, literary, recreational and clerical occupations.

The Course in Retrospect

In general, Fine Arts graduates were not as satisfied with their success in the labour market as other college graduates. This is reflected by the significantly lower-than-average proportions of graduates who thought their current employment matched their field of study and who were satisfied with their present job. A further reflection of this dissatisfaction is the fact that slightly more than 65% of the employed graduates, as compared with the 35% average for all college fields of study, believed they were over-qualified for the work they were doing. In spite of this, more than 75% of Fine Arts graduates, compared with 65% of all college graduates, would select this course again if given the opportunity.

Graphic and Audio-Visual Arts

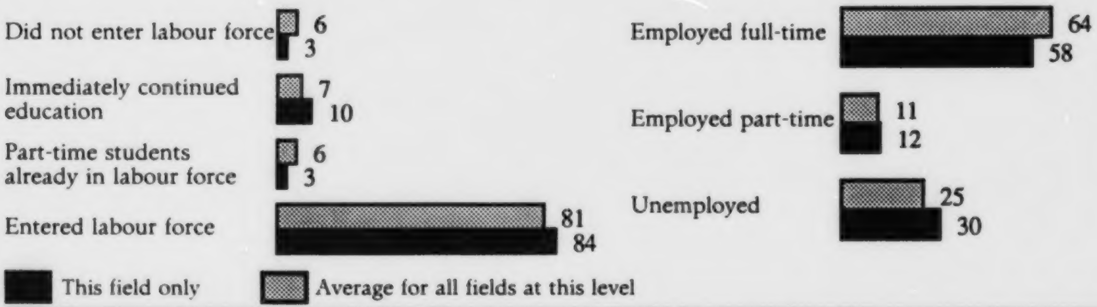
Trade/Vocational Programs
Public Trade Schools and Similar Institutions (12 months)

Graduate Trends

	1983-84*
Number of Graduates	660
% of Total Trade/Vocational Graduates	0.9

* This is the only period, since 1977, for which comprehensive and reliable data covering all provinces, territories and fields of study were available. Given this lack of historical data and the recent release of the data for 1983-84, no projections are yet available.

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation

The occupational distribution of these graduates was too broad to permit any significant concentrations to be reported.

Graphic and Audio-Visual Arts

Trade/Vocational Programs
Public Trade Schools and Similar Institutions (12 months)

This field of study includes programs in printing and publishing, photography and recorded music production. Admittance qualifications vary depending on the type of program (pre-employment or skill upgrading), the institution and the province. A 1984 survey indicated that Graphic and Audio-Visual Arts graduates had, on average, some community college education prior to enrollment. The average duration of these programs is one year. All provinces, with the exception of Prince Edward Island, New Brunswick and Saskatchewan, had successful graduates in 1983-1984. In this program only about 40% of the graduates were women. The average age at graduation was 27, which is comparable to the average for this level.

Graduate Trends and Projections

In 1983-1984, 660 successful completers were reported in this field of study, representing less than 1% of all completions at this level. If the current proportions hold, the average number of graduates should remain at about the same level over the projection period.

Destination of Graduates

The majority of graduates in this field of study entered the labour force on completion of their program, but were not as successful as other graduates in their job search. A greater-than-average proportion did not find a job, and those who did were not as likely to be employed full-time.

Occupations

Because of the wide range of occupations filled by these graduates, it was impossible to identify a clear pattern of employment. In addition, the numbers reported by the survey were too small to be statistically significant.

The Course in Retrospect

As suggested above, graduates in this field of study tended to find jobs unrelated to their training and to be dissatisfied. In spite of this, a higher-than-average number would select the same program of study if they had to make the decision again.

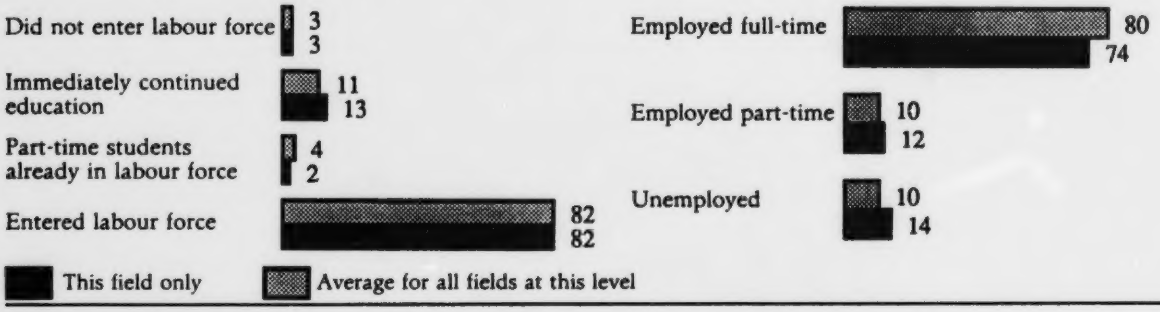
Graphic and Audio-Visual Arts

Career Program
Community College (2 years)

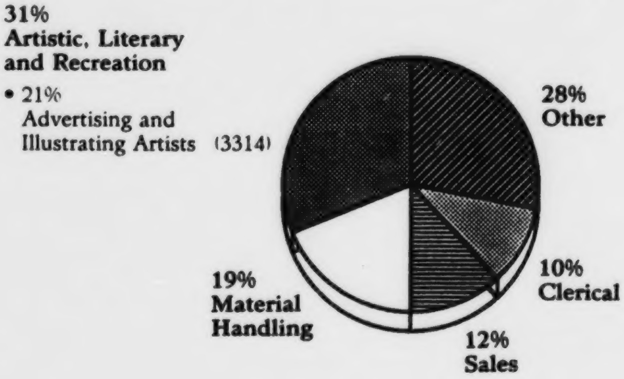
Graduate Trends and Projections

	1977	1981	1985	1986	1995
Number of Graduates	537	598	808	820	770
% of Total Community College Graduates	1.4	1.3	1.4	1.4	1.4

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation



Graphic and Audio-Visual Arts

Career Program
Community College (2 years)

The Graphic and Audio-Visual Arts field of study includes such areas of interest as photography, recorded music production and printing and publishing. The admittance requirements may vary from institution to institution but, in general, the candidate must be interviewed, present a letter of recommendation and some samples of work, take a diagnostic English test and have completed mathematics courses in high school. The program is offered in all provinces except Nova Scotia, New Brunswick and Saskatchewan. The duration of the program may vary according to the institution but, on average, spans two years. At some institutions, students may take this course through a CO-OP education program. According to 1984 data, roughly 5% of Graphic and Audio-Visual Arts graduates received their certificate/diploma in this manner. There are more men (60%) than women in this field of study which is concentrated in the province of Quebec.

Graduate Trends and Projections

Enrollments, and therefore graduations, depend on the capacity of the specific faculty to absorb new students and on the demand for entrance. Both these factors are partly influenced by the current and anticipated labour market situation. Since 1981, the annual number of graduates has averaged 725. The popularity of this course, as reflected by its share of all community college graduates, has remained fairly constant between 1977 and 1985. If course popularity and faculty capacities hold over the 1987 to 1995 period, 775 students per year should graduate from the course. The number of new graduates competing for jobs is thus expected to be significantly higher over the projection period than between 1981 and 1985.

Destination of Graduates

An average proportion of graduates in this field entered the labour force upon graduation. The proportion of graduates looking for but not finding jobs was slightly higher than the average across all college fields of study. Not only was the unemployment rate higher but the proportion of graduates who were employed full-time was less than in other fields of study. Of those graduates who did not enter the labour force, an average proportion continued their education.

Occupations

Most Graphic and Audio-Visual Arts graduates who were employed full-time two years after graduation were working as advertising and illustrating artists in the commercial printing and advertising services industry. The remaining employed graduates were concentrated in material handling, sales and clerical occupations. Graduates of this course seeking employment as advertising and illustrating artists face job competition mostly from other college graduates from the Commercial and Promotional Arts field of study.

The Course in Retrospect

A 1984 survey suggests that 1982 Graphics and Audio-Visual Arts graduates were not too successful in the labour market. A less-than-average proportion thought their present job directly matched their field of study and were satisfied with their current employment. In addition, roughly 50% believed they were over-qualified for their present job as compared with 35% of all college graduates. Nevertheless, an average proportion (65%) of these graduates would make the same educational choice if they had to choose again.

Music

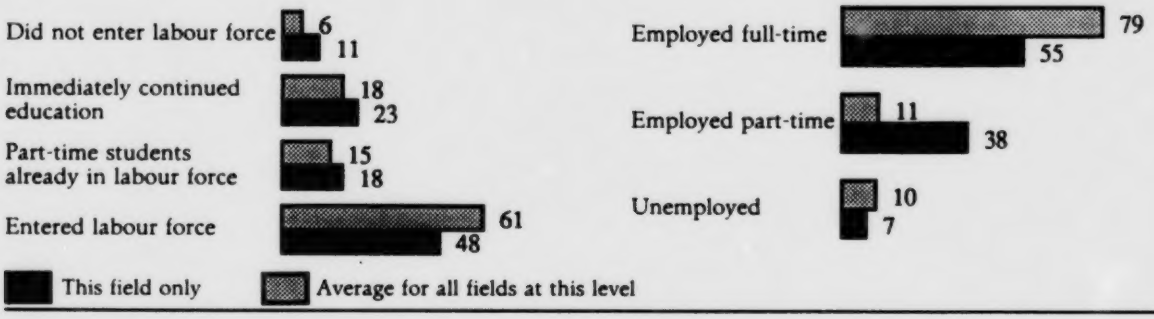
Arts

Undergraduate
University (4 years)

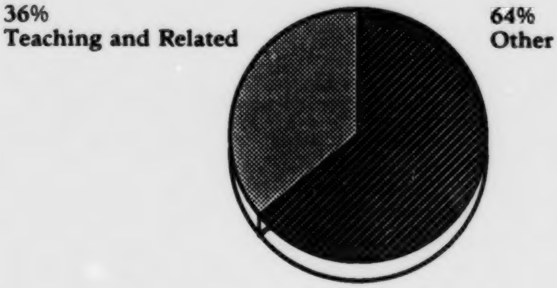
Graduate Trends and Projections

	1971	1981	1985	1986	1995
Number of Graduates	667	746	845	890	870
% of Total Undergraduate Degrees	0.9	0.8	0.7	0.8	0.8

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation



Music

Undergraduate
University (4 years)

The Music field of study covers all disciplines related to music, such as music history and literature, music theory, music composition, orchestral instrument and piano. In most faculties, enrollment is limited, and applicants have to pass auditions, interviews and a test of musical aptitude. The minimum qualification for admission is high-school completion with a good musical background. In Quebec, applicants must have a Diploma of Collegial Studies with a concentration in music. All provinces offer an undergraduate music program of some form. The bachelor's program usually requires three to five years of study, depending on the institution and the province. In some provinces various institutions also offer a program leading to a one- or two-year certificate or diploma. Most graduates are women.

Graduate Trends and Projections

In this field of study, more so than others, enrollments and graduations are limited by the capacity of the individual faculties to absorb new students. During the 1970s and early 1980s, the average annual number of graduates changed only slightly. Given current course popularity and faculty capacities, some 900 students per year are expected to graduate from the course over the 1987 to 1995 period.

Destination of Graduates

Compared to graduates in other fields of study, Music graduates were less likely to enter the labour force, according to 1984 data. An average proportion continued their education. Two years after graduation, two-thirds of the graduates were in the labour force, but were not too successful in securing full-time employment. Although their unemployment rate was lower than average, Music graduates were more likely than others to be employed on a part-time basis.

Occupations

The 1984 survey indicated that a significant proportion of 1982 graduates working full-time were employed in occupations related to teaching, while the remainder were distributed across other occupations. Music graduates from other levels, such as master's graduates, must compete in the labour market with these undergraduate degree holders, especially when poor labour market conditions exist.

The Course in Retrospect

Generally, Music graduates at this level were less successful in the labour market than graduates in other fields. A significantly lower-than-average proportion thought their current job was related to their course of study, which may explain why they were less satisfied with their employment and more likely to believe they were over-qualified for their job than others. Nonetheless, about 80% of the graduates indicated they would be ready to enroll in the same program of study if they had to make that decision again.

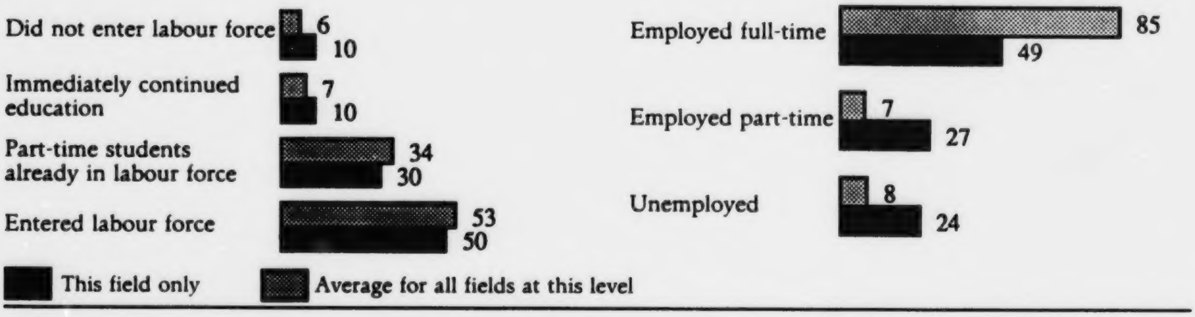
Music

Master's
University (2 years)

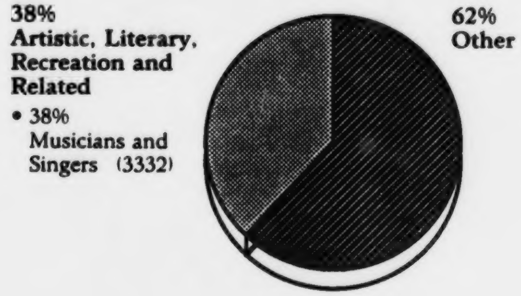
Graduate Trends and Projections

	1971	1981	1985	1986	1995
Number of Graduates	50	104	139	135	125
% of Total Master's Graduates	0.5	0.7	0.8	0.8	0.8

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation



Music

Master's
University (2 years)

The prerequisites for entrance into this field of study vary by institution, but in general, the candidate must have completed an honours undergraduate degree, or the equivalent, in this or a closely related field of study at a recognized university. (Holders of graduate diplomas and certificates are included with master's graduates.) The diploma and certificate programs are generally shorter than the master's program and may be taken following either an undergraduate or master's degree. Approximately 20% of the 1985 figure shown on the opposite page is attributable to graduate diplomas or certificates. The master's course is offered in all provinces except Newfoundland, Prince Edward Island, Nova Scotia, New Brunswick and Manitoba, and usually spans two years, depending on the institution. The majority of graduates are women (70%), and the course is concentrated in Quebec (55%).

Graduate Trends and Projections

Enrollments, and therefore graduations, depend on the capacity of the specific faculty to absorb new students and on the demand for entrance. Both these factors are influenced in part, by the current and expected labour market situation. Since 1981, the annual number of graduates has averaged 125. The popularity of this course, as reflected by its share of all master's graduates, remained fairly stable over the 1971 to 1986 period. If current course popularity and faculty capacities stay constant, over the 1987 to 1995 period about 125 students per year should graduate from the course.

Destination of Graduates

While slightly fewer of the master's graduates in this field of study than in others chose to enter the labour force upon graduation, more chose to continue their education (10%) or not to enter the labour force at all (10%). For those who did seek employment, especially full-time jobs, the search was more difficult than for other graduates at this level. Approximately 25% of the graduates who entered the labour force could not find a job, and only 50% could find full-time employment.

Occupations

The majority of Music graduates who were employed full-time two years after graduation in 1984 were working as musicians and singers in the Theatrical and Other Staged Entertainment industry. The remainder were scattered across various other occupations. Graduates of this course seeking employment as musicians and singers face job competition primarily from university graduates with a bachelor's degree in music or English and from fine arts graduates from community colleges or trade/vocational schools.

The Course in Retrospect

A 1984 survey indicated that the early labour market experience of these 1982 graduates was much more difficult than for other master's graduates. A slightly less-than-average number of graduates thought that they possessed more qualifications than their current job required. The survey further indicated that an average proportion believed their job matched their field of study, but a significantly less-than-average proportion were satisfied with their current job. Although the labour market transition was less successful for these graduates than for other master's graduates and the level of job satisfaction lower, still a slightly more-than-average proportion of these graduates (80%) would select the same course of study, if they had to make the choice again.

Personal Arts

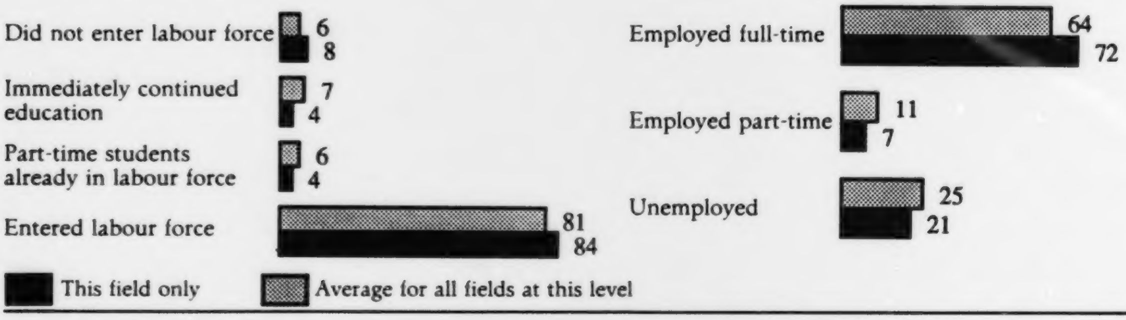
Trade/Vocational Programs
Public Trade Schools and Similar Institutions (10 months)

Graduate Trends

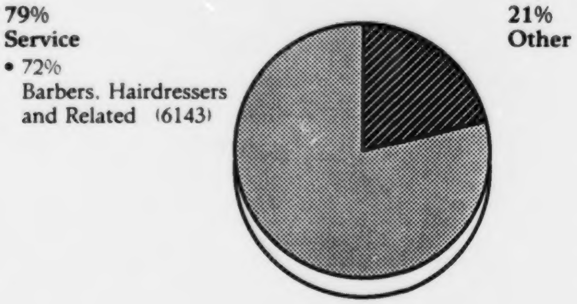
	1983-84*
Number of Graduates	1,174
% of Total Trade/Vocational Graduates	1.6

* This is the only period, since 1977, for which comprehensive and reliable data covering all provinces, territories and fields of study were available. Given this lack of historical data and the recent release of the data for 1983-84, no projections are yet available.

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation



Personal Arts

Trade/Vocational Programs
Public Trade Schools and Similar Institutions (10 months)

This field of study includes such areas of specialization as barbering, hairdressing, hairstyling, cosmetology and manicuring. While those who enrolled in this program in 1982 had, on average, completed a high-school diploma, the prerequisites depend on the type of program, the institution and the province. In 1983-1984, all provinces except New Brunswick offered a Personal Arts program usually lasting about 10 months. Women accounted for approximately 90% of those completing the program.

Graduate Trends and Projections

The number of successful completions reported in this field was around 1,200 in 1983-1984, representing almost 2% of all completions at this level. If the relative popularity of this course and the capacity of the faculty to absorb new students hold over the 1987 to 1995 period, the average annual number of graduates should decline slightly, owing to the shrinking size of the relevant age group.

Destination of Graduates

According to 1984 data, the number of Personal Arts graduates who entered the labour force was comparable to the average for Trade/Vocational programs. Those looking for a job were slightly more successful than graduates from other fields. A greater-than-average proportion of graduates found full-time employment.

Occupations

The majority of those who were working full-time two years after graduation were employed in service occupations, mostly as barbers and hairdressers. No other significant occupational concentrations were observed.

The Course in Retrospect

Graduates who were employed full-time were generally positive about their early labour market experiences, perhaps partly because a higher-than-average proportion of them are self-employed. A higher-than-average proportion also felt that their current job matched their training; lower-than-average proportions believed that they were over-qualified for their current job. Finally, about 75% of these graduates, compared to 60% of all trade-level graduates, reported that they would make the same educational choice if they had to decide again.

Commerce (Business Administration)

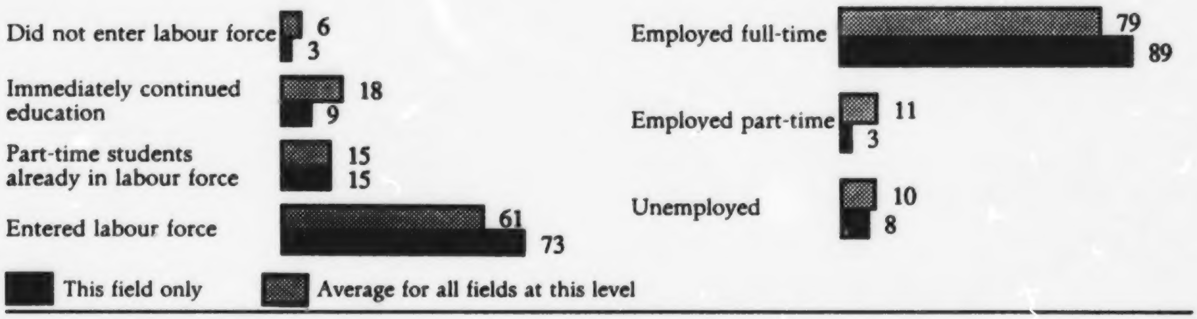
Undergraduate
University (3 years)

Business, Commerce, Management and Administration

Graduate Trends and Projections

	1971	1981	1985	1986	1995
Number of Graduates	3,771	11,914	16,151	16,790	15,860
% of Total Undergraduate Degrees	5.2	12.1	14.2	14.1	13.9

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation

**58%
Managerial, Administrative and Related**

- 36%
  Accountants, Auditors and Other Financial Officers (1171)
- 5%
  Sales and Advertising Management (1137)
- 4%
  Financial Management (1135)

**12%
Clerical and Related**

- 6%
  Bookkeepers and Accounting Clerks (4131)

**9%
Sales**

**21%
Other**

Business, Commerce, Management and Administration

Commerce (Business Administration)

Undergraduate
University (3 years)

This field of study covers all disciplines related to Business Administration, including accounting, marketing, industrial relations, personnel management and finance. Prospective students must have a high-school diploma and above-average marks, especially in mathematics (or a Diploma of Collegial Studies for Quebec students applying to a Quebec university). The average duration of the program is three years, but this varies according to the province, institution and program. All provinces offer this field of study, although most students are concentrated in Ontario and Quebec. Although must students in this field are men, the proportion of women is increasing and was 40% in 1985.

Graduate Trends and Projections

The number of graduates in this field of study has increased more than four fold since 1971. During the first half of the 1980s, an annual average of about 14,825 persons graduated in this program. As more and more students were attracted to the field, its relative importance increased to the point where Business and Commerce accounted for 14% of all the undergraduate degrees, diplomas and certificates awarded in Canada in 1985. Together with elementary-secondary teacher training, this is the most popular program of study at the undergraduate level. If its current popularity and the capacity of relevant faculties to absorb new students remain constant over the 1987 to 1995 period, 16,475 students per year should graduate from this course.

Destination of Graduates

After completing their program, a significantly larger proportion of graduates in this field were successful in securing full-time employment than in other fields of study, according to 1984 data. Conversely, they were less likely to pursue their schooling.

Occupations

Graduates from this field of study who were employed full-time two years after graduation were working, for the most part, in occupations related to management and administration, especially as accountants, auditors and other financial officers. Significant numbers were also working in the clerical and sales occupations. Graduates from this field must compete in the labour market with graduates of related administration programs at the university and college levels.

The Course in Retrospect

The 1984 labour market was more favourable than average for these graduates. They had a better chance of finding employment related to their education and were less likely to feel over-qualified for their jobs. Only an average number were satisfied with their position, although they were more prone than others to state they would select the same program of study, if they had to make that decision again.

Commerce (Business Administration)

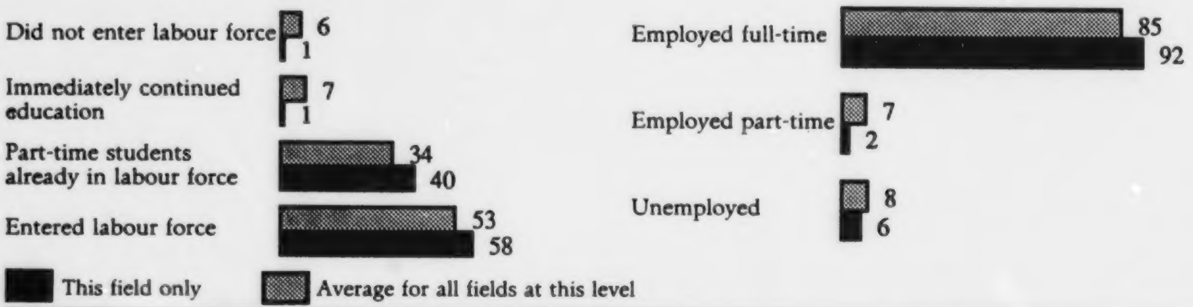
Master's
University (2 years)

Business, Commerce, Management and Administration

Graduate Trends and Projections

	1971	1981	1985	1986	1995
Number of Graduates	1,181	2,453	3,075	3,030	2,745
% of Total Master's Graduates	11.2	17.1	18.4	18.4	18.4

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation

62%
Management and Administration

- 22% Accountants, Auditors and Other Financial Officers (171)
- 9% Financial Management (135)
- 7% Sales and Advertising Management (137)
- 4% Occupations Related to Management (179)
- 3% Production Management (143)
- 3% Other Managers and Administrators (149)
- 2% General Managers (130)
- 2% Organization and Methods Analysts (173)

11%
Natural Sciences, Engineering and Mathematics

- 5% Systems Analysts and Programmers (2183)
- 3% Architects and Engineers (214)

7%
Social Sciences and Related Fields

- 4% Economists (2311)
- 3% Law and Jurisprudence (234)

20%
Other

Business, Commerce, Management and Administration

Commerce (Business Administration)

Master's
University (2 years)

The Commerce field of study includes accounting, finance, industrial relations, labour relations, marketing, retailing and personnel management. The prerequisites for entrance into this field of study vary by institution, but in general, the candidate must have completed an honours undergraduate degree, or the equivalent, in this or a closely related field of study at a recognized university. As mentioned in the introduction, holders of graduate diplomas and certificates are included with master's graduates. The diploma and certificate programs are generally shorter than the master's program and may be taken following either an undergraduate or master's degree. In this instance, about 10% of the 1985 graduating class received a graduate diploma or certificate. In some institutions it is possible to graduate through involvement in a CO-OP education program, although only about 5% of graduates in this field received their degrees in this manner according to 1984 data. The master's in Business Administration is offered in all provinces except Prince Edward Island and usually takes two years depending on the institution. The majority of graduates were men (75%) and graduates were concentrated in Ontario (45%).

Graduate Trends and Projections

Enrollments, and therefore graduations, depend on the capacity of the specific faculty to absorb new students and on the demand for entrance. Both these factors are influenced, in part, by the current and expected labour market situation. Since 1981, the annual number of graduates has averaged 2,900. The popularity of this course, as reflected by its share of all master's graduates, rose significantly over the 1971 to 1985 period, but has slackened in recent years. If current course popularity and faculty capacities remain constant over the 1987 to 1995 period, 2,900 students should graduate from this course per year.

Destination of Graduates

Upon graduation almost no Commerce graduates at this level continued their education or entered the household sector (i.e., did not look for a job). The greater-than-average number who were enrolled on a part-time basis in their final term were usually students returning to school to meet some form of occupational licensing requirement, such as an accountant's certificate. More graduates of the MBA program than master's graduates in other fields of study entered the labour force, and significantly more of them secured full-time employment.

Occupations

The majority of Commerce graduates who were employed full-time two years after graduation were working as accountants, auditors and other financial officers in the banking or accounting and bookkeeping industries. The remainder were concentrated in management, systems analysis and economics. Graduates of this course face job competition primarily from community college business graduates and those with an undergraduate university qualification in commerce, economics or mathematics.

The Course in Retrospect

A 1984 survey indicated that not only were more 1982 MBA graduates successful in the transition from school to work than other master's graduates, but a slightly greater-than-average proportion believed that their current job matched their field of study and were satisfied with the job. The survey also showed, however, that significantly more of these graduates than other master's graduates, thought they were over-qualified for their current job. In addition to these findings, 90% of these graduates, as compared to 80% of all master's graduates, indicated they would follow the same educational route if they had to make this choice again.

Commerce (Business Administration)

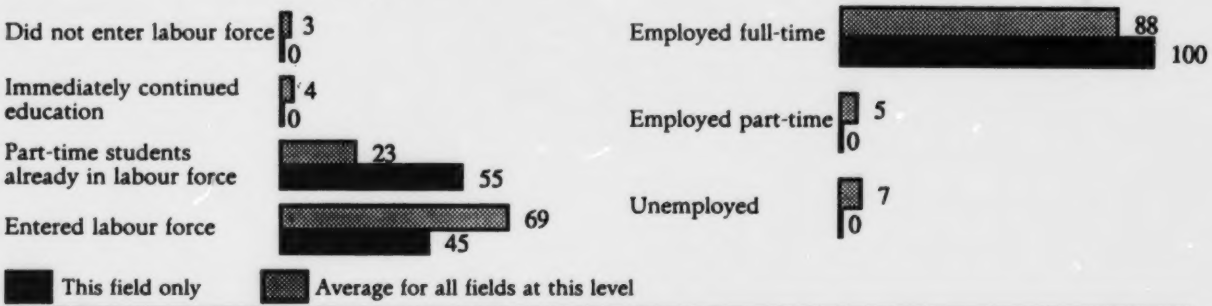
Doctorate
University (3 years)

Business, Commerce, Management and Administration

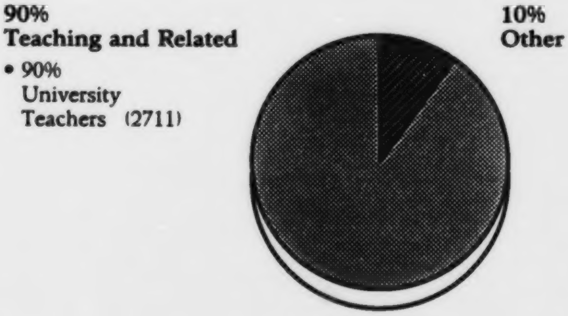
Graduate Trends and Projections

	1971	1981	1985	1986	1995
Number of Graduates	4	23	31	35	35
% of Total Doctorate Graduates	0.2	1.3	1.6	1.6	1.6

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation



Commerce (Business Administration)

Doctorate
University (3 years)

In general, this program is open to candidates that possess a MBA (Master's in Business Administration) or a related master's degree from a recognized university. Some institutions may consider candidates with only a four-year honours undergraduate degree who are willing to follow a 12-month program of study raising their qualification to the master's level. The program discussed here covers such areas of specialization as management, industrial relations, finance and marketing. It lasts, on average, three or four years and is available in Quebec, Ontario, Alberta and British Columbia. The majority of students enroll in the program on a part-time basis. The field is becoming less dominated by men: women represented 30% of those enrolled in 1985.

Graduate Trends and Projections

This program of study has become increasingly popular over the years. It accounted for 1.6% of all PhD graduates in 1985 compared to 0.2% in 1971. If its current popularity and the capacity of the relevant faculties to absorb new students remain constant over the 1987 to 1995 period, 30 students should graduate from this course per year. The number of new graduates competing for related employment is therefore expected to be about the same over the projection period as it was between 1981 and 1985.

Destination of Graduates

According to 1984 data, all the graduates entered the labour force after obtaining their degree, and all found full-time employment. These results surpass all other fields where, on average, 90% found full-time employment.

Occupations

About 90% of these graduates became university teachers. No specific occupation trend was observed for the remaining graduates.

The Course in Retrospect

Although a lower-than-average proportion of Business and Administration graduates thought their employment was related to their field of study, more were satisfied with their jobs than in other fields. This is partly explained by the fact that a very low proportion believed they had more education than necessary for the job. All PhD recipients from this program would select the same field of study if they had to choose again; such unanimity on this question is rare.

Financial Management (Accounting)

Trade/Vocational Programs
Public Trade Schools and Similar Institutions (12 months)

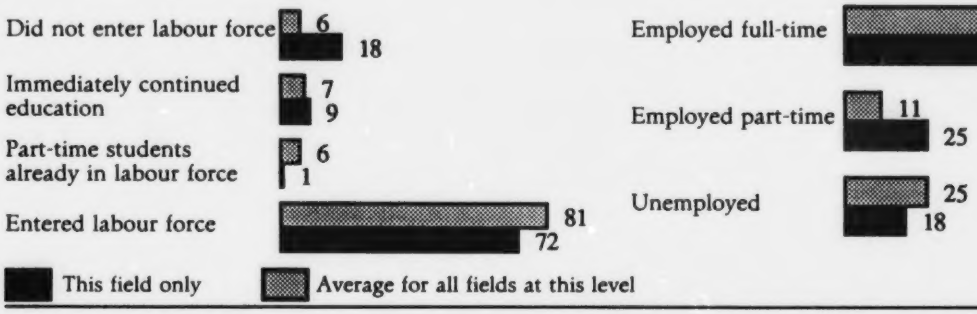
Business, Commerce, Management and Administration

Graduate Trends

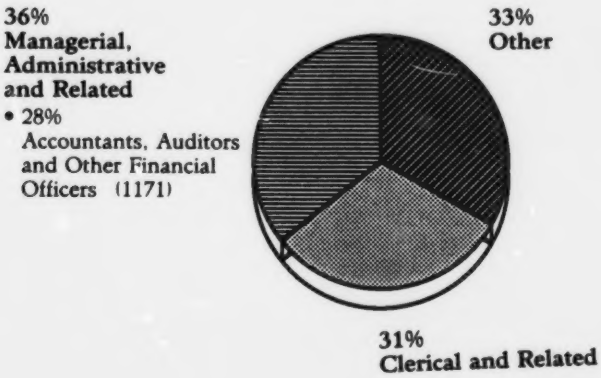
	1983-84*
Number of Graduates	699
% of Total Trade/Vocational Graduates	0.9

* This is the only period, since 1977, for which comprehensive and reliable data covering all provinces, territories and fields of study were available. Given this lack of historical data and the recent release of the data for 1983-84, no projections are yet available.

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation



Business, Commerce, Management and Administration

Financial Management (Accounting)

Trade/Vocational Programs
Public Trade Schools and Similar Institutions (12 months)

The basic requirements for entrance to this program vary according to the type of program (pre-employment or skill upgrading), the institution and the province. Generally, those who enter the program have completed high school. Although the program duration varies by institution and by province, it is usually 12 months. Newfoundland, Nova Scotia, Quebec, Manitoba and Alberta offered this course in 1983-1984. In 1982, most graduates were women, and the average age (30) was marginally above the average for this level (26).

Graduate Trends and Projections

In 1983-1984, the number of graduates in accounting at this level totalled 699, representing close to 1% of all qualifications awarded. If the current popularity of this course and the capacity of the relevant faculties to absorb new students hold over the 1987 to 1995 period, the average annual number of graduates should decline slightly, because of the decreasing size of the relevant population age group.

Destination of Graduates

A 1984 survey indicated that graduates in accounting at this level had a lower rate of participation in the labour force than graduates from other fields. However, those who looked for jobs faced relatively more favourable labour market conditions than others, as indicated by their lower-than-average unemployment rate, largely the result of the availability of part-time jobs.

Occupations

Among those employed full-time two years after graduation, the majority were employed in occupations related to administrative and clerical work. A fair proportion reported working as accountants and other financial officers. Graduates in accounting at this level face competition from college and university graduates in related fields of study.

The Course in Retrospect

Generally, these graduates fared better than others in the labour market as they were more likely to have a job related to their field of study. Almost all of those employed full-time were satisfied with their current job and did not think they were over-qualified for it. In addition, a larger-than-average proportion stated they would make the same educational choice if they had to make that decision again.

Accounting

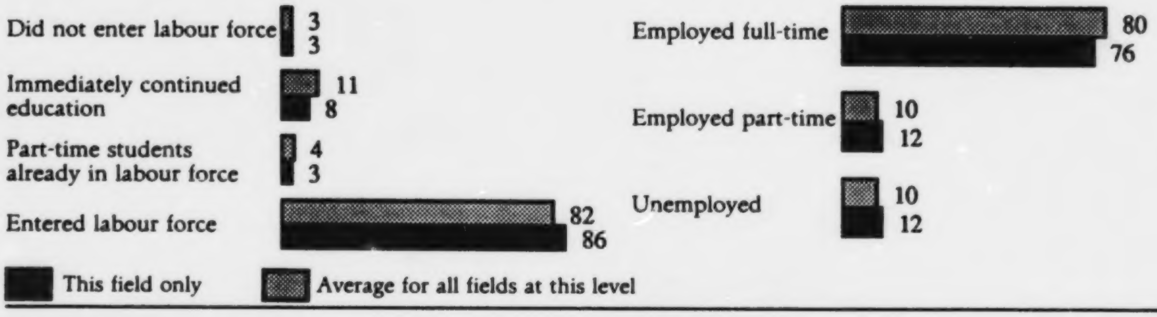
Career Program
Community College (2 years)

Business, Commerce, Management and Administration

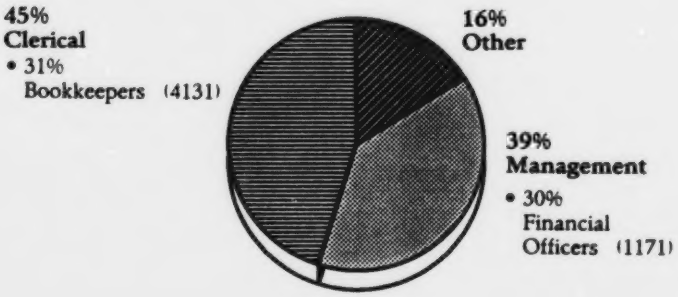
Graduate Trends and Projections

	1977	1981	1985	1986	1995
Number of Graduates	682	1,113	1,464	1,485	1,395
% of Total Community College Graduates	1.8	2.4	2.5	2.5	2.5

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation



Business, Commerce, Management and Administration

Accounting

Career Program
Community College (2 years)

The prerequisites for this course include passing of a mathematics test and the completion of high school with advanced standing in mathematics, English and bookkeeping. This course is offered in all provinces except New Brunswick. Most graduates are in Ontario. Although the duration of the program varies from institution to institution, it generally spans two years. In some institutions, students may take this course through a CO-OP program. According to 1984 data, roughly 10% of these graduates received their certificate or diploma in this manner. Most program participants are women (65%), and the average age is slightly less than average (23 years).

Graduate Trends and Projections

Enrollments, and therefore graduations, depend on the capacity of the specific faculty to absorb new students and on the demand for entrance. Both these factors are influenced partly by the current and anticipated labour market situation. Since 1981, the annual number of graduates has averaged 1,300. The popularity of this course, as indicated by its share of all community college graduates, increased slightly between 1977 and 1986. If its current popularity and faculty capacities remain constant over the 1987 to 1995 period, 1,400 students per year should graduate from this course.

Destination of Graduates

A significantly larger proportion of Accounting graduates entered the labour force than other college graduates. However, their unemployment rate was slightly higher, and the proportion of graduates who found full-time employment was less than average. Of those who did not enter the labour force, a slightly less-than-average number continued their education.

Occupations

The majority of Accounting graduates who were employed full-time two years after graduation were working as bookkeepers or financial officers in the accounting and bookkeeping services industry. The remaining graduates were employed in a variety of other occupations, but were not concentrated in any one area. Graduates seeking employment as bookkeepers or financial officers face job competition primarily from other community college (business) graduates and from those with a bachelor's degree in commerce.

The Course in Retrospect

In general, Accounting graduates seemed more pleased with the labour market outcome of their educational choice than most other college graduates. This is reflected in data taken from a 1984 survey showing that more Accounting graduates than others were satisfied with their current job, only an average number thought they were over-qualified for thier job and roughly 65% would make the same educational choice if they had to make the decision again.

Other Financial Management

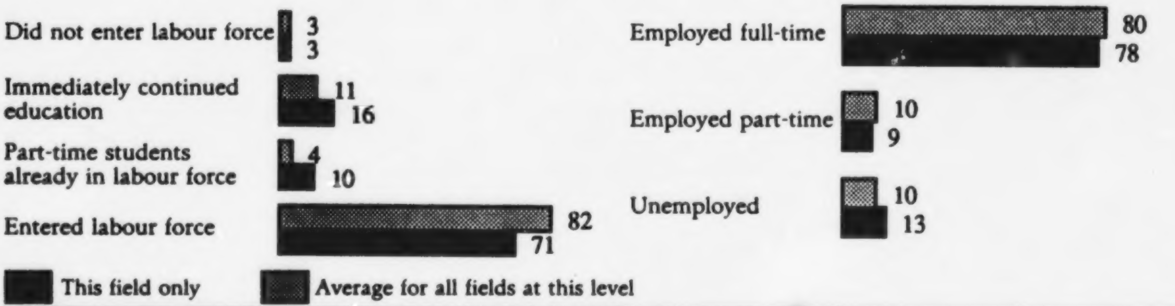
Career Program
Community College (3 years)

Business, Commerce, Management and Administration

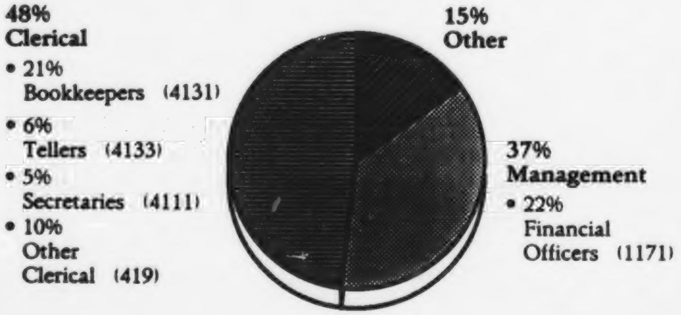
Graduate Trends and Projections

	1977	1981	1985	1986	1995
Number of Graduates	1,282	2,033	2,242	2,275	2,140
% of Total Community College Graduates	3.4	4.3	3.8	3.8	3.8

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation



Business, Commerce, Management and Administration

Other Financial Management

Career Program
Community College (3 years)

This field of study includes such areas as investment management, assessment/appraisal, property management and banking. The prerequisites for entrance vary by institution, but in general, the candidate must take a mathematics test and have achieved good standing in advanced high-school English and mathematics. The course is offered in all provinces except Prince Edward Island, New Brunswick, Manitoba and Saskatchewan, and usually takes three years, depending on the institution. Some colleges offer students the possibility of graduating through involvement in a CO-OP program. According to 1984 data, roughly 15% of Financial Management graduates received their certificate or diploma in this manner. The majority of graduates are women and reside in Quebec.

Graduate Trends and Projections

Enrollments, and therefore graduations, depend on the capacity of the specific faculty to absorb new students and on the demand for entrance. Both these factors are influenced, in part, by the current and anticipated labour market situation. Since 1981, the annual number of graduates has averaged 2,200. The popularity of this course, as reflected by its share of all community college graduates, increased between 1977 and 1986. If its current popularity and faculty capacities remain constant over the 1987 to 1995 period, about 2,000 students should graduate from this course per year. The number of new graduates competing for related employment is therefore expected to be slightly lower in the projection period than it was over the 1981 to 1985 period.

Destination of Graduates

After graduation, a significantly smaller proportion of graduates entered the labour force than from other fields. Not only was the unemployment rate slightly higher than average for this field of study, but the proportion of graduates who found full-time employment was slightly less than average. Of the graduates who did not enter the labour force, a greater-than-average number continued their education.

Occupations

Financial Management graduates in the labour force two years after graduation were working mostly as financial officers (accountants or auditors), bookkeepers or tellers in the accounting and bookkeeping services, credit union and protective services industries. The remainder were employed in a variety of other occupations, particularly in the Other Clerical (collectors, claim adjusters, travel clerks) occupations. Graduates of this course seeking employment as financial officers face job competition from university graduates with a bachelor's degree.

The Course in Retrospect

In general, Financial Management graduates were slightly less satisfied with their success in the labour market than other college graduates. This is indicated by a lower-than-average rate of correspondence between current employment and field of study, lower-than-average graduate satisfaction with their present job and slightly greater-than-average agreement among graduates that they were over-qualified for their job. Even though the transition from school to work seems to have been slightly less rewarding for Financial Management graduates than other college graduates, a slightly greater-than-average proportion stated they would select the same course if the choice had to be made again.

Institutional Management

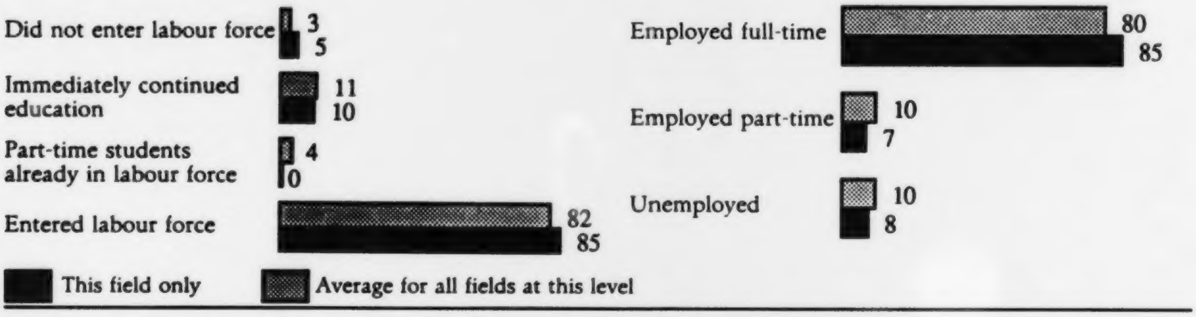
Career Program
Community College (2 years)

Business, Commerce, Management and Administration

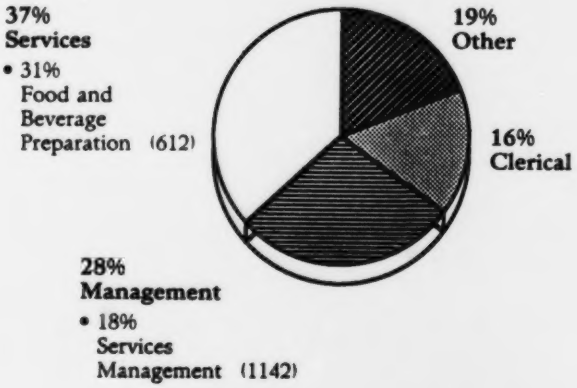
Graduate Trends and Projections

	1977	1981	1985	1986	1995
Number of Graduates	303	578	718	730	685
% of Total Community College Graduates	0.8	1.2	1.2	1.2	1.2

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation



Business, Commerce, Management and Administration

Institutional Management

Career Program
Community College (2 years)

The Institutional Management field of study includes such areas of interest as health care institutional management and hotel/restaurant/resort management. The prerequisites for entrance vary by institution, but in general, the candidate must pass an interview, take a diagnostic English test and have achieved good standing in advanced high-school English and mathematics. The course is offered in all provinces except Prince Edward Island, Nova Scotia and Quebec and usually takes two years, depending on the institution. Some institutions offer the possiblility of obtaining a certificate or diploma through involvement in a CO-OP program. According to 1984 data, a large proportion (30%) of students in this field graduated in this manner. An equal number of men and women graduate from this field of study, the majority of whom are concentrated in Ontario.

Graduate Trends and Projections

Enrollments, and therefore graduations, depend on the capacity of the specific faculty to absorb new students and on the demand for entrance. Both these factors are influenced, in part, by the current and anticipated labour market situation. Since 1981, the annual number of graduates has averaged 600. The popularity of this course, as reflected by its share of total community college graduates, increased slightly between 1977 and 1986. If its current popularity and faculty capacities remain constant over the 1987 to 1995 period, 700 students should graduate from this course per year.

Destination of Graduates

After graduation, a slightly larger proportion of these graduates entered the labour force than in other fields of study. Not only was their unemployment rate slightly lower than average, but the proportion who found full-time employment was also slightly greater than average. Of the graduates who did not enter the labour force, an average proportion (10%) continued their education.

Occupations

Institutional Management graduates working full-time two years after graduation were employed mostly as service managers (for example, hotel managers), or food and beverage preparers (chefs, cooks, bartenders, waiters) in the hotel, motel and tourist courts and food services industries. Others were employed in a variety of other occupations, particularly in clerical occupations. Graduates of this course seeking employment as service managers faced job competition primarily from university graduates with a bachelor's degree in commerce or specialized administrations.

The Course in Retrospect

Although Institutional Management graduates appeared to be slightly more satisfied with their success in the labour market than other college graduates (as indicated by the greater-than-average correspondence between their current job and the field of study and their satisfaction with their employment), 60% still thought they were over-qualified for the work they were doing. Even though the transition from school to work appears to have gone more smoothly than for graduates in other fields of study, a less-than-average proportion of these graduates stated they would make the same educational choice if they had to make the decision again.

Management and Administration (Business and Commerce)

Trade/Vocational Programs
Public Trade Schools and Similar Institutions (14 months)

Graduate Trends

	1983-84*
Number of Graduates	5,568
% of Total Trade/Vocational Graduates	7.4

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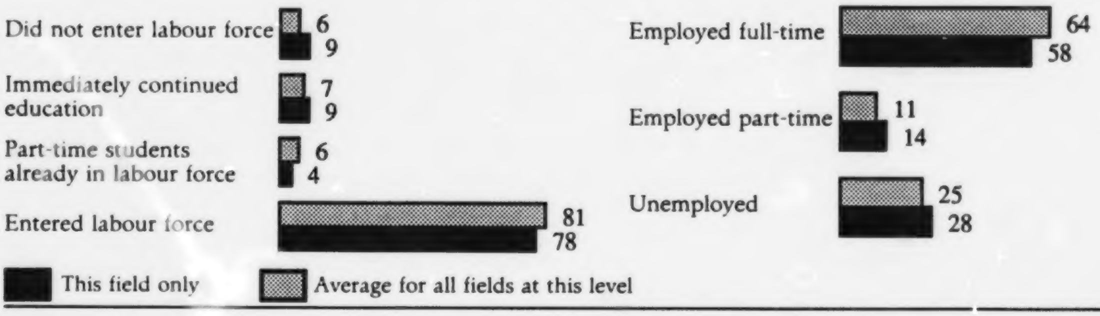
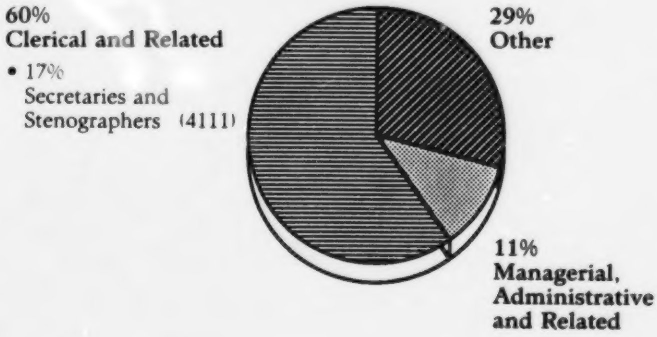
[*] This is the only period, since 1977, for which comprehensive and reliable data covering all provinces, territories and fields of study were available. Given this lack of historical data and the recent release of the data for 1983-84, no projections are yet available.

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation



Management and Administration (Business and Commerce)

Trade/Vocational Programs
Public Trade Schools and Similar Institutions (14 months)

Although the prerequisites for entrance to this program vary by type of program (pre-employment or skill upgrading), by institution and by province, students who enrolled in this program in 1982 had, on average, completed secondary school. The program of study lasts about 14 months and was offered by all provinces except Prince Edward Island in 1983-1984. A 1984 survey indicated that the average age of those who completed the program (28) was slightly above the average for this level. Approximately 80% of the graduates were women.

Graduate Trends and Projections

This field of study is among those producing the most graduates at this level: more than 5,500 individuals graduated from this program in 1983-1984, which represents about 7% of all completions at the trade level. If the current popularity of this course and the capacity of the faculty to absorb new students remain constant over the 1987 to 1995 period, the average annual number of graduates should decline slightly, owing to the decreasing size of the corresponding population age group.

Destination of Graduates

According to the 1984 data, an average proportion of graduates entered the labour force upon completion of their program. The proportion of graduates who looked for a job but who were unable to find one was slightly greater than in other fields, and graduates in this field were less likely than other trade-level graduates to find full-time employment.

Occupations

Among the graduates who were working full-time two years after graduation, the majority were employed in occupations related to clerical and administrative work. A fair proportion were working as secretaries and stenographers. This group faces competition in the labour market with trade-level graduates and college secretarial graduates.

The Course in Retrospect

Graduates from this field of study who were working full-time were much more likely than graduates from other fields at this level to have jobs related to their course of study. Their overall satisfaction with their job and with the educational requirements of the position in relation to their qualifications was average. More graduates than in other fields indicated they would make the same educational choice again. Labour market conditions were better for graduates in this field of study than in others.

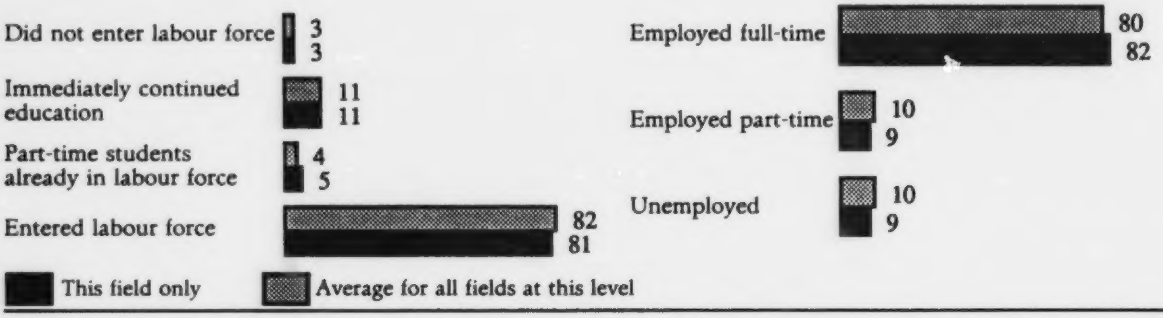
Management and Administration (Business and Commerce)

Career Program
Community College (2 years)

Graduate Trends and Projections

	1977	1981	1985	1986	1995
Number of Graduates	1,372	2,204	3,649	3,700	3,480
% of Total Community College Graduates	3.7	4.7	6.2	6.2	6.2

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation

31%
Clerical

- 8% Bookkeepers (4131)
- 6% Secretaries (4111)
- 2% Shipping Clerks (4153)
- 4% Other Clerical (419)
- 2% Electronic Data-Processing Operators (414)

26%
Management

- 9% Sales Management (1137)
- 7% Financial Officers (1171)
- 3% Other Management (1149)

17%
Sales

- 6% Commercial Travellers (5133)
- 6% Salespersons, Commodities (5135)
- 2% Insurance Salespersons (5171)

26%
Other

Business, Commerce, Management and Administration

Management and Administration (Business and Commerce)

Career Program
Community College (2 years)

The prerequisites for entrance into this field of study vary from institution to institution but in general, candidates must pass an interview, take a diagnostic English test and have successfully completed high school with advanced standing in mathematics, English and preferably business. This course is offered in all provinces, although most graduates are concentrated in Ontario. The duration of the program depends on the institution and the specialty, but usually spans two years. In some institutions, students can obtain their certificate or diploma through a CO-OP program. According to 1984 data, roughly 10% of students in this field graduated in this manner. As many men as women graduate from this field of study.

Graduate Trends and Projections

Enrollments, and therefore graduations, depend on the capacity of the specific faculty to absorb new students and on the demand for entrance. Both these factors are influenced, in part, by the current and anticipated labour market situation. Since 1981, the annual number of graduates has averaged 3,100 per year. The popularity of this course, as reflected by its share of all community college graduates, increased dramatically between 1977 and 1986. If its current popularity and faculty capacities hold over the 1987 to 1995 period, some 3,500 students should graduate from the course per year.

Destination of Graduates

Graduates in this field are truly representative of the average for all community college graduates: 80% directly entered the labour force, and the majority (90%) found employment.

Occupations

Graduates working full-time two years after graduation were employed mostly as sales managers, bookkeepers, financial officers, commercial travellers, commodity salespersons or secretaries in the business service or protective service industries. Other graduates were working in a variety of occupations, particularly in the clerical, management, sales and service occupations. In the job market, graduates from this course face competition from other college business graduates and from university graduates with a bachelor's degree in commerce or economics.

The Course in Retrospect

Although the labour market outcome of these graduates appears to be slightly better than average, the graduates themselves offer a somewhat different picture. Although 90% of them found employment, fewer than average thought that their current job was related to their field of study and were satisfied with the job. Further, a much greater-than-average proportion believed they possessed more educational qualifications than their job required. Reflecting this is the fact that only about one-half of the graduates, compared with 65% of other college graduates, would make the same educational choice again.

Marketing

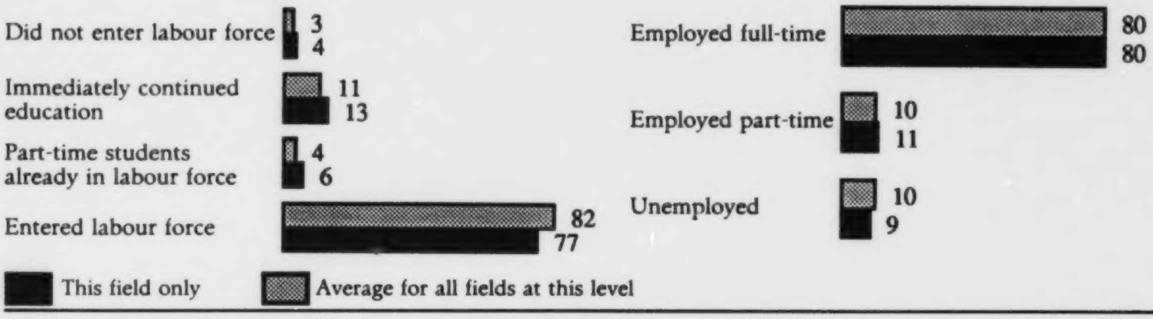
Career Program
Community College (2 years)

Business, Commerce, Management and Administration

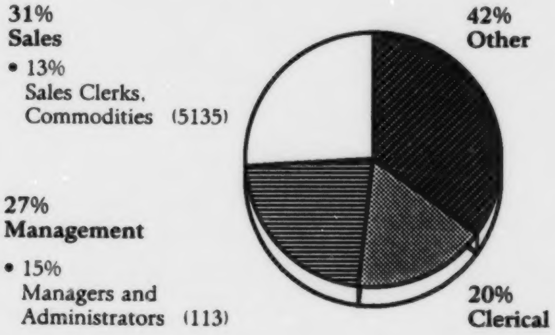
Graduate Trends and Projections

	1977	1981	1985	1986	1995
Number of Graduates	837	1,300	1,552	1,575	1,480
% of Total Community College Graduates	2.2	2.8	2.6	2.6	2.6

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation



Business, Commerce, Management and Administration

Marketing

Career Program
Community College (2 years)

The prerequisites for entrance into this field of study vary by institution but in general, candidates must take diagnostic English and mathematics tests and have completed high school with advanced standing in these subjects. The course is offered in all provinces except Newfoundland, Prince Edward Island, New Brunswick, Manitoba and Saskatchewan. It usually spans two years, depending on the institution. At some colleges, students may obtain their certificate or diploma through involvement in a CO-OP program. According to 1984 data, roughly 15% of Marketing students graduated in this manner. The majority of these graduates are men and are concentrated in Ontario.

Graduate Trends and Projections

Enrollments, and therefore graduations, depend on the capacity of the specific faculty to absorb new students and on the demand for entrance. Both these factors are influenced, in part, by the current and anticipated labour market situation. Since 1981, the annual number of graduates has averaged 1,450. The popularity of this course, as reflected by its share of total community college graduates, increased slightly over the 1977 to 1986 period. If its current popularity and faculty capacities remain constant over the 1987 to 1995 period, 1,500 students should graduate from the course per year.

Destination of Graduates

A smaller proportion of Marketing graduates entered the labour force than from other fields, although they fared as well as other community college graduates in finding employment (10% unemployment rate). Of those who did not enter the labour force upon graduation, an average proportion (10%) continued their education.

Occupations

Marketing graduates working full-time two years after graduation were employed mostly as sales clerks in the commodities sector. Others were employed in a variety of occupations particularly in the Other Managers and Administrators category (for example, sales and advertising managers) and in clerical occupations. Graduates seeking employment as sales and advertising managers face competition primarily from university graduates with a bachelor's degree in commerce or economics.

The Course in Retrospect

Marketing graduates were slightly less satisfied with their labour market experience than other community college graduates. This is indicated by the lower-than-average correspondence between graduates' current employment and the field of study, the slightly lower-than-average number who were satisfied with their present job and the slightly greater-than-average number who thought they were over-qualified for the job. Reflecting the fact that the transition from school to work was slightly less rewarding for Marketing graduates than for other college graduates, 55%, compared with 65% of other college graduates, stated they would select the same course if they had to choose again.

Retail Sales

Trade/Vocational Programs
Public Trade Schools and Similar Institutions (6 months)

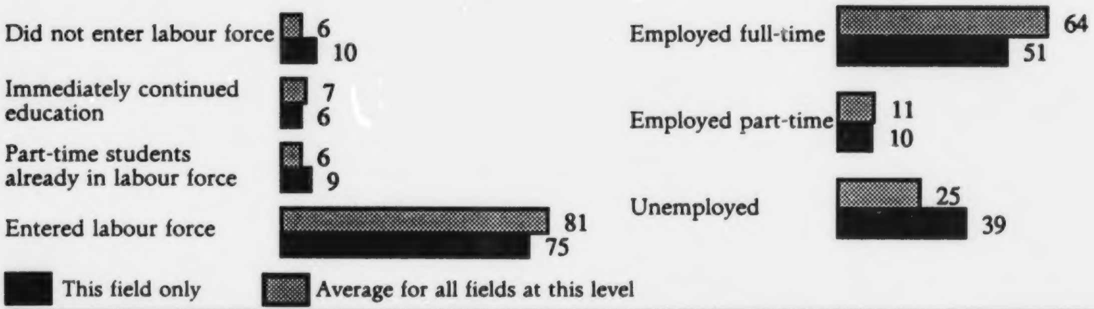
Business, Commerce, Management and Administration

Graduate Trends

	1983-84*
Number of Graduates	297
% of Total Trade/Vocational Graduates	0.4

* This is the only period, since 1977, for which comprehensive and reliable data covering all provinces, territories and fields of study were available. Given this lack of historical data and the recent release of the data for 1983-84, no projections are yet available.

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation

The occupational distribution of these graduates was too broad to permit any significant concentrations to be reported.

Business, Commerce, Management and Administration

Retail Sales

Trade/Vocational Programs
Public Trade Schools and Similar Institutions (6 months)

Although the prerequisites for admission to this program vary according to the type of program (pre-employment or skill upgrading), the institution and the province, a 1984 survey indicates that on average, graduates had completed secondary school prior to enrollment. The program, which lasts about six months, was offered in Nova Scotia, Quebec, Ontario and British Columbia in 1983-1984, and slightly more women than men graduated from the course in that period.

Graduate Trends and Projections

According to the 1984 data, approximately 300 students graduated in Retail Sales, which represented 0.4% of all graduations at this level. If the current popularity of this course and the student capacity of individual faculties to absorb new students remain constant over the 1987 to 1995 period, the average annual number of graduates may decline slightly because of the decreasing size of the relevant population age group.

Destination of Graduates

Graduates from this field enter the labour force in a proportion comparable to the average for the trade level, but experience a dramatically less favourable labour market outcome (about a 40% unemployment rate).

Occupations

Graduates in Retail Sales were found in too many different occupations to permit identification of an occupational trend.

The Course in Retrospect

Graduates in Retail Sales were less positive about their jobs than graduates in other fields. They were also less likely to make the same educational choice if they had the opportunity, probably in part because of their poor success in the labour market. Community college graduates in this field reported relatively brighter labour market outcomes.

Retail Sales

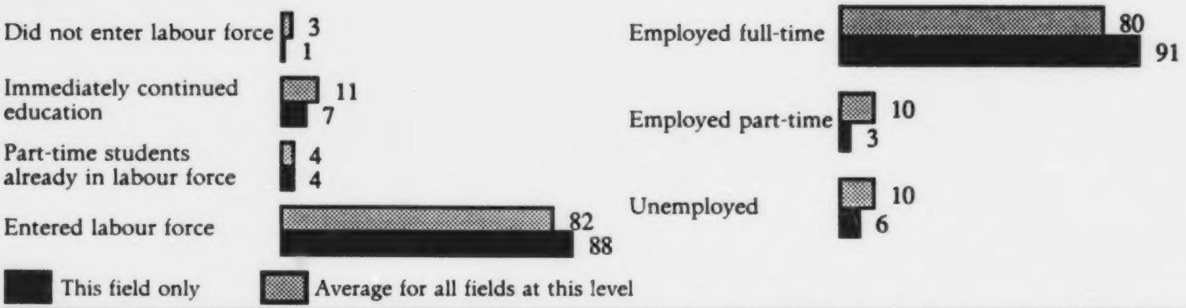
Career Program
Community College (2 years)

Business, Commerce, Management and Administration

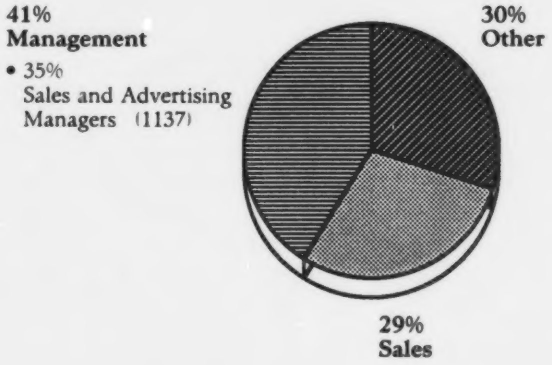
Graduate Trends and Projections

	1977	1981	1985	1986	1995
Number of Graduates	234	530	469	475	445
% of Total Community College Graduates	0.6	1.1	0.8	0.8	0.8

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation



Business, Commerce, Management and Administration

Retail Sales

Career Program
Community College (2 years)

The prerequisites for entrance into this field of study vary by institution, but in general, candidates must have a secondary school diploma with emphasis on English and mathematics. The course is offered in all provinces except Newfoundland and New Brunswick, and usually takes two years, depending on the institution. In some institutions, it is possibile to take this course through a CO-OP program. According to 1984 data, more graduates in this field of study (33% of all graduates) obtained their diploma or certificate through a CO-OP program than in other community college fields of study. The majority of graduates were women and were concentrated in Ontario.

Graduate Trends and Projections

Enrollments, and therefore graduations, depend on the capacity of the specific faculty to absorb new students and on the demand for entrance. Both these factors are influenced, in part, by the current and anticipated labour market situation. Since 1981, the annual number of graduates has averaged 475. The popularity of this course, as indicated by its share of all community college graduates, remained fairly stable over the 1977 to 1986 period, despite a rise in the number of graduates in the early 1980s. If the current popularity of this course and student capacities stay constant over the 1987 to 1995 period, 450 students per year should graduate from the course. The number of new graduates competing for related employment is therefore expected to be slightly lower over the projection period than it was over the 1981 to 1985 period.

Destination of Graduates

A significantly higher proportion of Retail Sales graduates than other college graduates entered the labour force. Not only was their unemployment rate lower than average, but the proportion who found full-time employment was much higher, compared with other community college graduates. Of those who did not directly enter the labour force, a lower-than-average proportion continued their education.

Occupations

Retail Sales graduates working full-time two years after graduation were employed mostly as sales and advertising managers. Other graduates were working in a variety of other occupations, particularly in sales. Graduates seeking employment as sales and advertising managers face competition from university graduates with a bachelor's degree in commerce or economics.

The Course in Retrospect

Although Retail Sales graduates were more successful than other college graduates in finding employment, a significantly lower-than-average proportion were satisfied with their current job. A large number thought their job was directly related to their field of study, but believed that they possessed more qualifications than their job required (70%). A smaller-than-average proportion of graduates stated they would select the same course if they had to make the choice again.

Secretary – Accounting and Bookkeeping

Trade/Vocational Programs
Public Trade Schools and Similar Institutions (9 months)

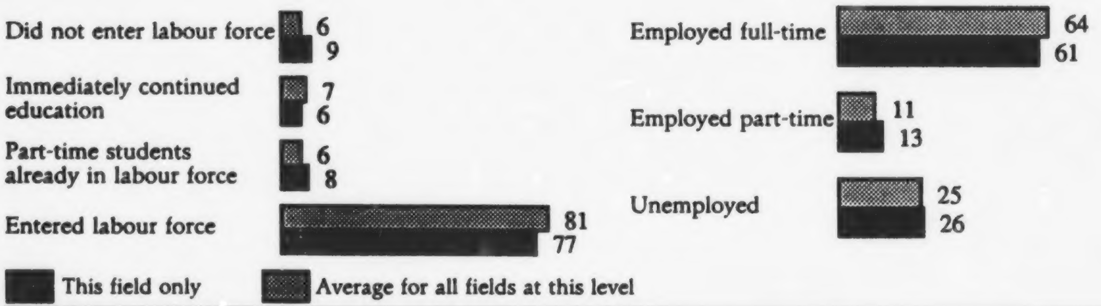
Business, Commerce, Management and Administration

Graduate Trends

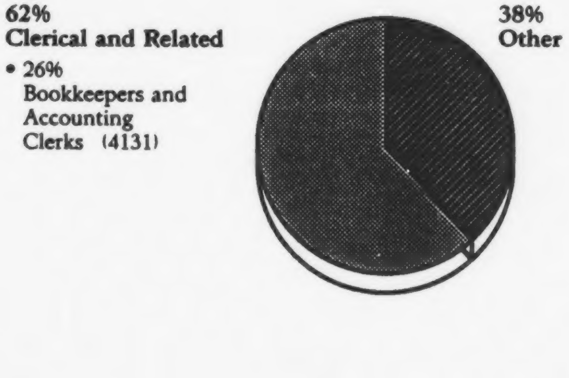
	1983-84*
Number of Graduates	814
% of Total Trade/Vocational Graduates	1.1

* This is the only period, since 1977, for which comprehensive and reliable data covering all provinces, territories and fields of study were available. Given this lack of historical data and the recent release of the data for 1983-84, no projections are yet available.

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation



Business, Commerce, Management and Administration

Secretary — Accounting and Bookkeeping

Trade/Vocational Programs
Public Trade Schools and Similar Institutions (9 months)

This field of study refers to secretarial work related to accounting and bookkeeping duties. Students who enrolled in this training program in 1982 had, on average, completed secondary school. The prerequisites vary, however, by type of program, institution and province. All provinces except Prince Edward Island, Quebec, Saskatchewan and Alberta have offered this program in recent years. The average duration of the program was nine months. The average age of graduates, most of whom were women, was 28.

Graduate Trends and Projections

In 1983-1984, the number of students graduating from this program totalled 814, which represented about 1% of all graduates. If the current popularity of this course and the capacity of the relevant faculties to absorb new students hold over the 1987 to 1995 period, the average annual number of graduates should decline slightly as a result of the decreasing size of the corresponding population age group.

Destination of Graduates

Upon completion of their program, most graduates from this field entered the labour force. The success of those seeking jobs was average for this level (26% unemployment).

Occupations

Two years after graduation, those who were working full-time were employed mostly in clerical and related occupations, especially as bookkeepers and accounting clerks. An insignificant number of graduates were working in other occupations. Trade/vocational graduates face competition for related employment from college and university graduates of business administration, accounting and related programs.

The Course in Retrospect

Graduates working full-time were more likely than graduates from other fields to be in occupations related to their training programs. Their reported level of satisfaction with their job and their educational preparation is typical of other fields at this level.

Secretary – General

Trade/Vocational Programs
Public Trade Schools and Similar Institutions (9 months)

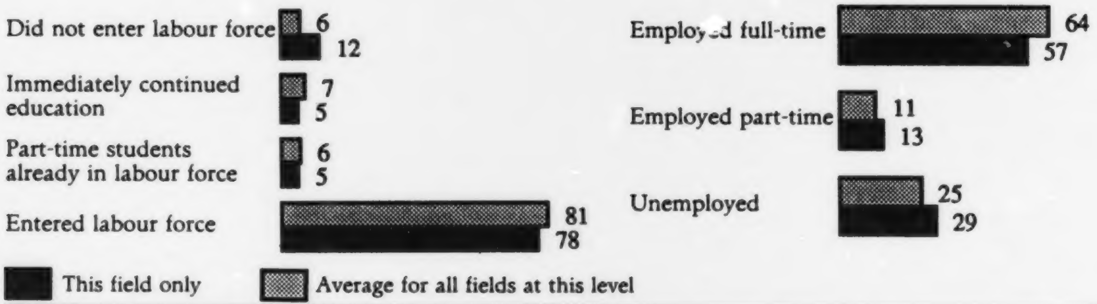
Business, Commerce, Management and Administration

Graduate Trends

	1983-84*
Number of Graduates	3,858
% of Total Trade/Vocational Graduates	5.1

* This is the only period, since 1977, for which comprehensive and reliable data covering all provinces, territories and fields of study were available. Given this lack of historical data and the recent release of the data for 1983-84, no projections are yet available.

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation

73%
Clerical and Related

- 31%
  Secretaries and Stenographers (4111)
- 7%
  Electronic Data-Processing Equipment Operators (4143)
- 6%
  Cashiers and Tellers (4133)
- 6%
  Receptionists and Information Clerks (4171)

9%
Service

18%
Other

Business, Commerce, Management and Administration

Secretary – General

Trade/Vocational Programs
Public Trade Schools and Similar Institutions (9 months)

The prerequisites for admittance to this course of study vary by type of program (pre-employment or skill upgrading), by institution and by province. Students who enrolled in 1982 had, on average, completed secondary school. The program of study takes about nine months and was offered in all provinces in 1983-1984. A 1984 survey indicated that those who completed the course were slightly older than graduates from other fields. Women accounted for approximately 95% of the graduates.

Graduate Trends and Projections

The number of graduates in this field makes it one of the most important fields of study at the trade level. In 1983-1984, more than 3,800 students graduated, accounting for about 5% of all graduations at this level. If the current popularity of this course and the capacity of relevant faculties to absorb new students hold over the 1987 to 1995 period, the average annual number of graduates should decline slightly owing to the decreasing size of the corresponding population age group.

Destination of Graduates

An average proportion of graduates from this field entered the labour force upon completion of their program. However, they were not as successful as graduates from other fields in securing full-time jobs, and their unemployment rate was higher than average.

Occupations

Most graduates working full-time two years after graduation were employed in clerical and related occupations, especially as secretaries and stenographers. Graduates of this course of study face competition for employment from graduates in related secretarial fields of study at this and the college level.

The Course in Retrospect

Employed graduates from this field of study were more likely to have a job that matched their course of study than other graduates at this level. This may partly explain the relatively higher level of job satisfaction among these graduates and their greater tendency to indicate they would make the same educational choice, if faced with that decision again.

Secretary – General

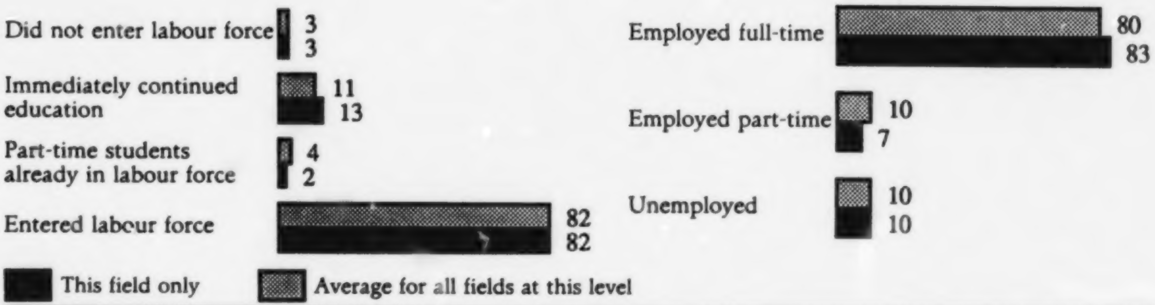
Career Program
Community College (2 years)

Business, Commerce, Management and Administration

Graduate Trends and Projections

	1977	1981	1985	1986	1995
Number of Graduates	1,956	2,542	2,480	2,515	2,365
% of Total Community College Graduates	5.2	5.4	4.2	4.2	4.2

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation

83%
Clerical

- 54%
  Secretaries and Stenographers (4111)
- 8%
  Electronic Data-Processing Equipment Operators (4143)
- 5%
  Bookkeepers and Accounting Clerks (4131)
- 4%
  Receptionists (4171)
- 5%
  Other Clerical (419)

8%
Management

- 4%
  Other Managers and Administrators (113)

9%
Other

Business, Commerce, Management and Administration

Secretary – General

Career Program
Community College (2 years)

The prerequisites for entrance into this field of study vary by institution, but in general the candidate must pass an interview, take a diagnostic English test, meet certain typing and shorthand standards and have completed advanced English courses at the high-school level. The course is offered in all provinces and usually lasts two years. In some institutions, it is possible to graduate through involvement in a CO-OP program. According to 1984 data, roughly 15% of all graduates obtained their certificate or diploma in this manner. Almost all graduates were women and were concentrated in Quebec.

Graduate Trends and Projections

Enrollments, and therefore graduations, depend on the capacity of the specific faculty to absorb new students and on the demand for entrance. Both these factors are influenced, in part, by the current and anticipated labour market situation. Since 1981, the annual number of graduates has averaged 2,550. The popularity of this course, as indicated by its share of all community college graduates, rose slightly during the late 1970s, but has since declined to pre-1977 levels. If the course's current popularity and faculty capacities remain constant over the 1987 to 1995 period, 2,400 students should graduate from the course per year. The number of new graduates competing for related employment is therefore expected to be slightly lower over the projection period than it was over the 1981 to 1985 period.

Destination of Graduates

The early labour market experience of graduates in this field was about the same as for all college graduates. The only noticeable divergence from this typical outcome is the fact that a significantly greater-than-average proportion of these graduates were employed full-time. Of those who did not enter the labour force, a slightly greater-than-average proportion continued their education.

Occupations

Graduates working full-time two years after graduation were employed mostly as secretaries, word processing operators, bookkeepers and receptionists in the business service, banking and insurance industry. Others were working in a variety of other occupations, particularly in other managerial occupations (for example, as executive secretaries). Graduates seeking employment as secretaries face competition from graduates of similar courses at the trade/vocational and community college levels.

The Course in Retrospect

In general, these graduates were more satisfied with their success in the labour market than other community college graduates. This is seen in the higher-than-average proportion who thought their current job matched their field of study and who were satisfied with their job In spite of this apparent satisfaction, about 50%, compared with 35% of other college graduates, believed they were over-qualified for their current position. An average proportion of graduates from this program (60%) stated they would select the same course if they had to make the choice again.

Secretary – Legal

Trade/Vocational Programs
Public Trade Schools and Similar Institutions (10 months)

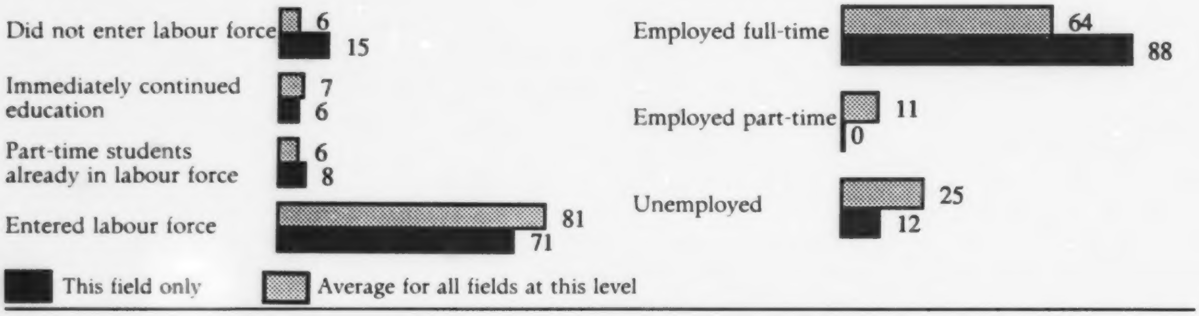
Business, Commerce, Management and Administration

Graduate Trends

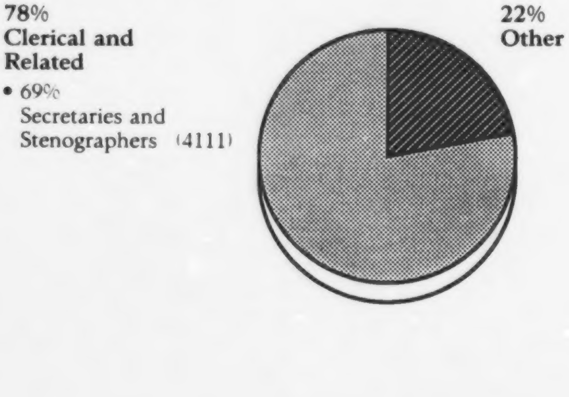
	1983-84*
Number of Graduates	130
% of Total Trade/Vocational Graduates	0.2

* This is the only period, since 1977, for which comprehensive and reliable data covering all provinces, territories and fields of study were available. Given this lack of historical data and the recent release of the data for 1983-84, no projections are yet available.

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation



Business, Commerce, Management and Administration

Secretary – Legal

Trade/Vocational Programs
Public Trade Schools and Similar Institutions (10 months)

The Legal Secretary field of study includes programs leading to occupations such as legal secretary/law clerk and court reporter. Students who enrolled in this program in recent years had, on average, completed a high-school diploma prior to enrollment. The prerequisites for the course vary according to the type of program, the institution and the province. In 1983-1984, New Brunswick, Ontario, Manitoba and British Columbia offered this program which usually lasts about 10 months. Most of the students were women.

Graduate Trends and Projections

The number of graduations reported in this field in 1983-1984 totalled 130, accounting for a very small proportion of all graduations at this level. If this course's current popularity and the capacity of relevant faculties to absorb new students hold over the 1987 to 1995 period, the average annual number of graduates should decline slightly, because of the declining size of the corresponding population age group.

Destination of Graduates

Upon completion of their program, a lower-than-average proportion of graduates from this field entered the labour force. Those who looked for a job were more successful than other trade-level graduates, as reflected in their lower-than-average unemployment rate, and those who found jobs were all employed on a full-time basis.

Occupations

The majority of graduates who found work were employed in clerical and related occupations, especially as stenographers and secretaries (including legal secretaries). For these occupations, graduates must compete with other trade-level graduates as well as with college graduates from related secretarial fields.

The Course in Retrospect

Employed graduates from this field of study were more positive than other graduates about their early experiences in the labour market. This may be partly because they were more likely than others to find work related to their course of study, although approximately 50% thought the educational requirements of their job were below their own level of schooling.

Secretary – Legal

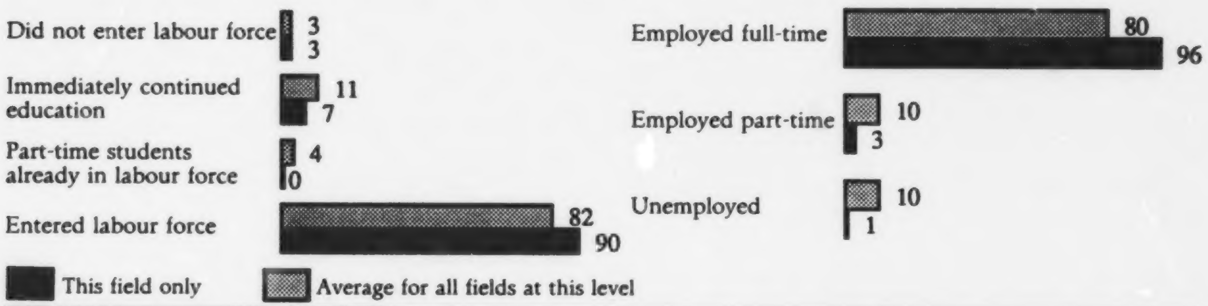
Career Program
Community College (2 years)

Business, Commerce, Management and Administration

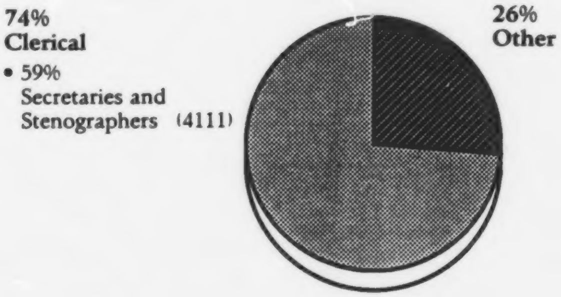
Graduate Trends and Projections

	1977	1981	1985	1986	1995
Number of Graduates	579	740	452	460	430
% of Total Community College Graduates	1.5	1.6	0.8	0.8	0.8

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation



Business, Commerce, Management and Administration

Secretary – Legal

Career Program
Community College (2 years)

The Legal Secretary field of study leads to occupations such as law clerk and court reporter. The prerequisites for entrance into this field of study vary by institution, but in general, candidates must pass an interview, take a diagnostic English test, have a specified standing in typing and shorthand and have completed advanced English and mathematics courses at the high-school level. The course is offered in all provinces except Newfoundland and usually takes two years, depending on the institution. At some colleges, students may obtain their certificate or diploma through involvement in a CO-OP program. According to 1984 data, roughly 15% of Legal Secretary students graduated in this manner. The majority of graduates were women and were concentrated in Ontario.

Graduate Trends and Projections

Enrollments, and therefore graduations, depend on the capacity of the specific faculty to absorb new students and on the demand for entrance. Both these factors are influenced, in part, by the current and anticipated labour market situation. Since 1981, the annual number of graduates has averaged 550. The popularity of this course, as reflected by its share of all community college graduates, declined over the 1977 to 1986 period. If its current popularity and faculty capacities remain constant over the 1987 to 1995 period, 450 students should graduate from the course per year. The number of new graduates competing for related employment is therefore expected to be lower over the projection period than it was over the 1981 to 1985 period.

Destination of Graduates

Legal Secretary graduates were more successful in the labour market than is average for other college fields of study. Not only did a greater-than-average proportion enter the labour force, but they were also among those most likely to find full-time employment. A lower-than-average number of graduates continued their education after graduation.

Occupations

Legal Secretary graduates working full-time two years after graduation were employed mostly as secretaries and stenographers in lawyers' and notaries' offices. Others were working in a variety of other occupations, but were not concentrated in any one. Graduates seeking employment as Legal Secretaries face job competition from other secretarial graduates at the college and trade/vocational levels.

The Course in Retrospect

Not only were Legal Secretary graduates more successful than other college graduates in their transition from the education system to the labour market, but a greater-than-average proportion were satisfied with their present job. Perhaps one reason for the high level of job satisfaction is the fact that few of these graduates believed they were over-qualified for their current employment. In spite of this relatively bright picture, only about 55%, compared with 65% of all college graduates, stated they would follow the same educational route if they could make the choice again.

Secretary – Medical

Trade/Vocational Programs
Public Trade Schools and Similar Institutions (10 months)

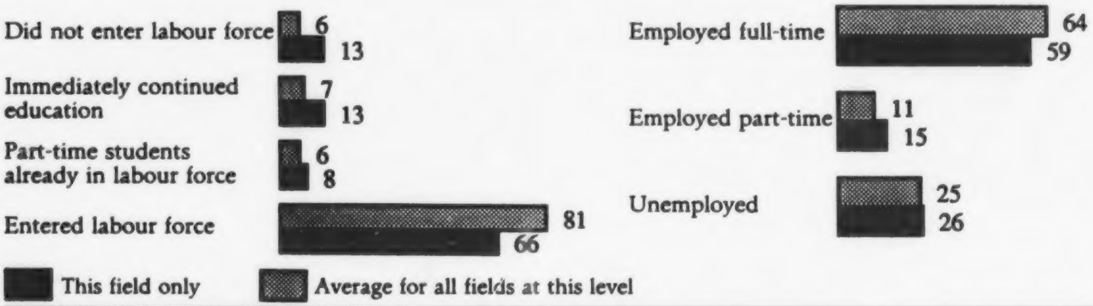
Business, Commerce, Management and Administration

Graduate Trends

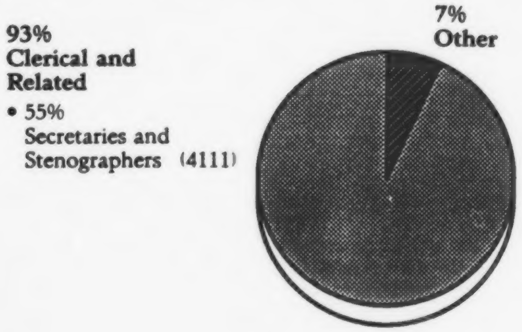
	1983-84*
Number of Graduates	343
% of Total Trade/Vocational Graduates	0.5

* This is the only period, since 1977, for which comprehensive and reliable data covering all provinces, territories and fields of study were available. Given this lack of historical data and the recent release of the data for 1983-84, no projections are yet available.

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation



Business, Commerce, Management and Administration

Secretary – Medical

Trade/Vocational Programs
Public Trade Schools and Similar Institutions (10 months)

This field of study includes training programs leading to health records technologist and medical secretary occupations, of which the latter is the most important in terms of program enrollment. The minimum entrance requirements vary according to the type of program offered, the institution and the province. Of the students who completed the course in 1982, most had a high-school diploma before enrolling in their program and most resided in New Brunswick, Manitoba, Saskatchewan, Alberta or British Columbia. The average length of the course was 10 months, depending on the type of program (pre-employment or skill upgrading). The average age of graduates was 27. Women accounted for 95% of all graduates.

Graduate Trends and Projections

In 1983-1984, 343 students graduated from this field of study, representing less than 1% of all graduations reported for that period. If the current popularity of this course and the capacity of relevant faculties to absorb new students hold over the 1987 to 1995 period, the average annual number of graduates should decline slightly owing to the decreasing size of the corresponding population age group.

Destination of Graduates

A lower-than-average proportion of graduates entered the labour force upon completion of their program. Labour market conditions facing them were roughly comparable to the average for this level.

Occupations

Almost all graduates who found full-time jobs were employed in clerical and related occupations. More than half were working as secretaries and stenographers (including medical secretaries). Graduates in this field of study face competition for related employment from college graduates in this field as well as from other secretarial graduates at the trade level.

The Course in Retrospect

Although these graduates faced a labour market situation comparable to that faced by other college graduates, they were the most likely of all secretarial graduates to find employment matching their program of study. Comparably fewer reported being over-qualified for their current job. Approximately 70% of the graduates, compared with 60% of all trade/vocational graduates, stated they would take the same program if they had to make that decision again. College graduates in this field of study fared relatively better in the labour market.

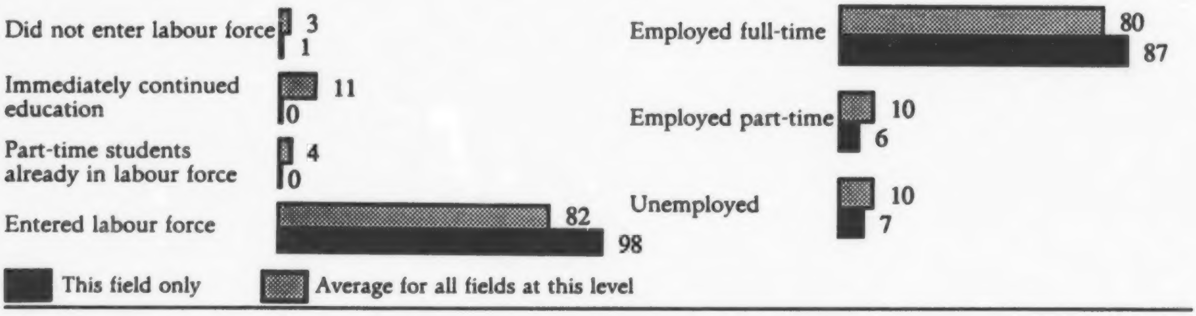
Secretary – Medical

Career Program
Community College (2 years)

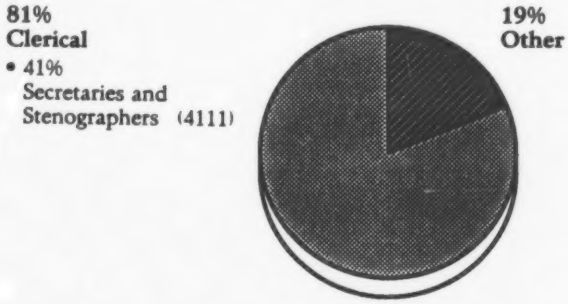
Graduate Trends and Projections

	1977	1981	1985	1986	1995
Number of Graduates	559	497	536	545	510
% of Total Community College Graduates	1.5	1.1	0.9	0.9	0.9

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation



Business, Commerce, Management and Administration

Secretary – Medical

Career Program
Community College (2 years)

The Medical Secretary field of study includes programs in such areas as health records technology. The prerequisites for entrance into this field of study vary by institution, but in general, candidates must pass an interview and a medical examination, take a diagnostic English test, have a specified standing in typing and shorthand and have completed advanced high-school English and mathematics courses. The course of study is offered in all provinces except Newfoundland and Nova Scotia and usually takes two years, depending on the institution. At some colleges, students may obtain their diploma or certificate through involvement in a CO-OP program. According to 1984 data, roughly 15% of the students in this field of study graduated in this manner. The majority of graduates were women and were concentrated in Ontario.

Graduate Trends and Projections

Enrollments, and therefore graduations, depend on the capacity of the specific faculty to absorb new students and on the demand for entrance. Both these factors are influenced, in part, by the current and anticipated labour market situation. Since 1981, the annual number of graduates has averaged 525. The popularity of this course, as reflected by its share of all community college graduates, has been declining since 1977. If its current popularity and faculty capacities remain constant over the 1987 to 1995 period, 525 students should graduate from the course per year. The number of new graduates competing for related employment is therefore expected to be about the same over the projection period as it was over the 1981 to 1985 period.

Destination of Graduates

Following graduation, almost all Medical Secretaries entered the labour force. Not only was their unemployment rate slightly lower than the average for all college graduates, but the proportion of those who found full-time employment was significantly higher than average. No students took this course on a part-time basis or continued their education after graduation.

Occupations

Medical Secretary graduates working full-time two years after graduation were employed mostly as secretaries and stenographers in the hospital industry. Others were working in a variety of other occupations, but were not concentrated in any one. Graduates seeking employment as Medical Secretaries face job competition from other secretarial graduates at the college and trade/vocational levels.

The Course in Retrospect

Although Medical Secretaries appear less successful than legal secretaries in finding employment, their success rate is still better than for general secretaries and most other college graduates. A significantly greater-than-average proportion of Medical Secretary graduates were satisfied with their present job, partly because fewer of these graduates than other college graduates believed they were over-qualified for their job. In spite of this, only about 55%, compared with 65% of all college graduates, stated they would select the same course if they had to make the choice again.

Secretary – Word Processing

Trade/Vocational Programs
Public Trade Schools and Similar Institutions (4 months)

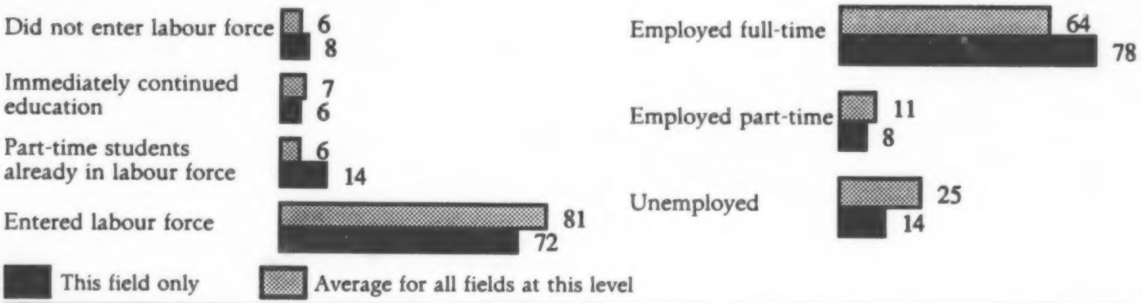
Business, Commerce, Management and Administration

Graduate Trends

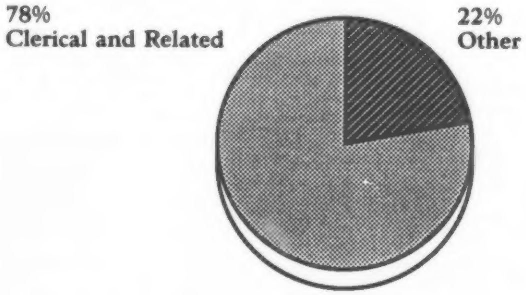
	1983-84*
Number of Graduates	1,075
% of Total Trade/Vocational Graduates	1.4

* This is the only period, since 1977, for which comprehensive and reliable data covering all provinces, territories and fields of study were available. Given this lack of historical data and the recent release of the data for 1983-84, no projections are yet available.

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation



Business, Commerce, Management and Administration

Secretary – Word Processing

Trade/Vocational Programs
Public Trade Schools and Similar Institutions (4 months)

This program provides training on word-processing equipment used in the secretarial field. The basic requirement for entrance to the program varies with the type of program, the institution and the province. In general, students who enroll in this course have completed a high-school diploma, although this may not always be essential. The average duration of the program is about four months. In 1983-1984, students graduated from this field of study in all provinces except Prince Edward Island, Quebec and Alberta. A 1984 survey indicates that those who completed the course were generally older than graduates from other trade-level programs and most were women (90% of all graduates).

Graduate Trends and Projections

In the 1983-1984 period, about 1,075 students successfully completed this training program, accounting for 1.4% of all graduations at this level. If the current popularity of this course and the capacity of relevant faculties to absorb new students hold over the 1987 to 1995 period, the average annual number of graduates should decline slightly owing to the decreasing size of the corresponding population age group.

Destination of Graduates

Graduates from this program entered the labour force in a proportion comparable to the average for this level. Their chances of finding employment were better than for other graduates at this level, as reflected by their unemployment rate of 14%, compared with 25% for trade-level courses overall.

Occupations

Of the graduates working full-time two years after graduation, the majority were employed in clerical and related occupations, although not in any specific one. Graduates in this field of study face competition for related employment from graduates of other secretarial training programs at this and the college level.

The Course in Retrospect

Although graduates in this field were more likely than other trade/vocational graduates to find employment, their jobs were not necessarily related to their training program. In fact, only about 50% of those employed full-time thought their job corresponded to the course of study.

Specialized Administration

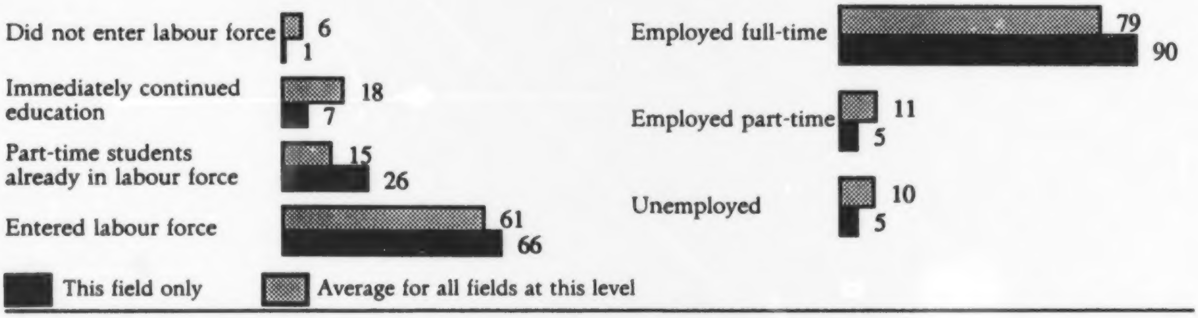
Undergraduate
University (3 years)

Business, Commerce, Management and Administration

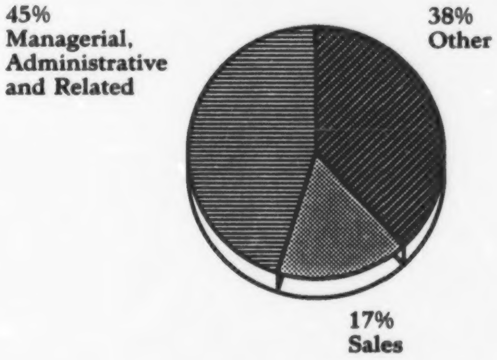
Graduate Trends and Projections

	1971	1981	1985	1986	1995
Number of Graduates	229	399	437	450	410
% of Total Undergraduate Degrees	0.3	0.4	0.4	0.4	0.4

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation



Business, Commerce, Management and Administration

Specialized Administration

Undergraduate
University (3 years)

This field of study covers programs in public administration, health administration, hotel and food administration and other Specialized Administration studies. Generally, applicants must have a high-school diploma (or, in Quebec, a Diploma of Collegial Studies) with above-average standing, especially in mathematics. In some courses leading to a certificate or diploma, applicants without a high-school diploma may be considered on the merit of their related experience, references and potential for success. Undergraduate programs in Specialized Administration are offered in Nova Scotia, New Brunswick, Quebec, Ontario, Saskatchewan, Alberta and British Columbia, and usually take three years, depending on the institution and the province.

Graduate Trends and Projections

The number of students graduating from this field of study has not increased as much as in business administration. Since 1981, an average of 450 persons have graduated annually from Specialized Administration disciplines. This is significantly more than during the 1970s, when approximately 300 students graduated from this program per year. However, the relative popularity of the field stayed almost the same during those years; graduates of this program represented 0.4% of all undergraduates in 1985. If the current popularity of this course and the capacity of relevant faculties to absorb new students hold over the 1987 to 1995 period, 425 students per year should graduate from the course. The number of new graduates competing for related employment is therefore expected to be slightly lower over the projection period than it was over the 1981 to 1985 period.

Destination of Graduates

According to 1984 data, a larger-than-average proportion of graduates from this field of study decided to enter the labour force and were successful in finding full-time employment. Only 5% of 1982 graduates were unemployed two years after graduation.

Occupations

Almost half of the graduates working full-time were employed in occupations related to management and administration, while another significant number were employed in sales occupations. Graduates from this field must compete with graduates in the same discipline at the master's level, as well as with other graduates in administrative studies at the undergraduate and college levels.

The Course in Retrospect

Although graduates in Specialized Administration were more likely than others to think they were over-qualified for their job, overall they were fairly successful in their employment search. The majority reported that their job was related in some way to the course of study; they were also more satisfied than average with their job.

Specialized Administration

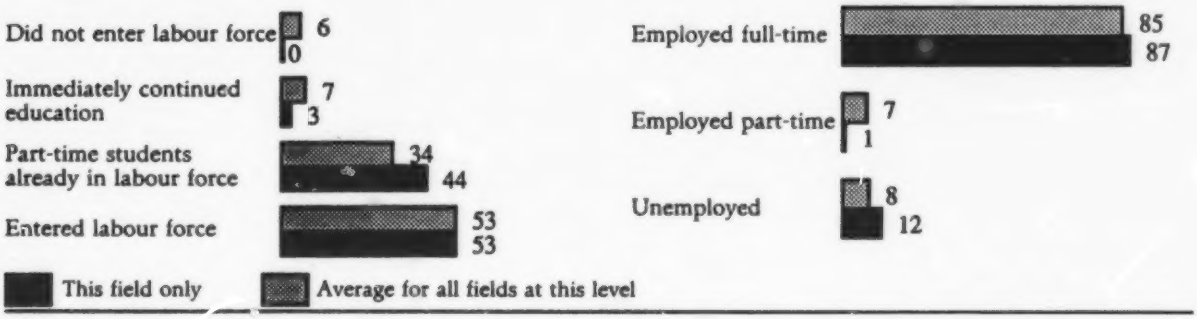
Master's
University (2 years)

Business, Commerce, Management and Administration

Graduate Trends and Projections

	1971	1981	1985	1986	1995
Number of Graduates	131	246	309	305	275
% of Total Master's Graduates	1.2	1.7	1.9	1.9	1.9

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation

56%
Management and Administration

- 12%
  Accountants, Auditors and Other Financial Officers (1171)
- 10%
  Administrators in Medicine and Health (1134)
- 8%
  Occupations Related to Management (1179)
- 7%
  Other Managers and Administrators (1149)

13%
Natural Sciences, Engineering and Mathematics

- 7%
  Systems Analysts and Programmers (2183)

11%
Social Sciences and Related Fields

20%
Other

Specialized Administration

Master's
University (2 years)

The Specialized Administration field of study includes programs in public administration, health administration and hotel and food administration. The prerequisites for entrance into this field of study vary by institution, but in general, candidates must have an honours undergraduate degree or the equivalent in this or a closely related field of study from a recognized university. As mentioned in the introduction, holders of graduate diplomas and certificates are included with master's graduates. Diploma and certificate programs are usually shorter than the master's, and may be taken following either an undergraduate or a master's degree. In 1985, almost all graduates in this field (98%) received master's degrees. The course is offered in all provinces except Newfoundland and Prince Edward Island and generally takes two years, depending on the institution. At some universities, students may graduate through involvement in a CO-OP education program. According to 1984 data, roughly 10% of graduates in this field received their qualification in this manner. The majority of graduates were men (60%) and were concentrated in Quebec (25%).

Graduate Trends and Projections

Enrollments, and therefore graduations, depend on the capacity of the specific faculty to absorb new students and on the demand for entrance. Both these factors are influenced, in part, by the current and anticipated labour market situation. Since 1981, the annual number of graduates has averaged 325. The popularity of this course, as reflected by its share of all master's graduates, rose slowly and consistently over the 1971 to 1985 period. If current course popularity and student capacities remain constant over the 1987 to 1995 period, 300 students should graduate from this course per year. The number of new graduates competing for related employment is therefore expected to be slightly lower over the projection period than it was over the 1981 to 1985 period.

Destination of Graduates

Although about the same proportion of Specialized Administration graduates as other master's graduates directly entered the labour force, a much larger-than-average proportion were attending school in their final term on a part-time basis. This may reflect the number who were attending school to meet some occupational licensing requirement. Of those who entered the labour force, an average proportion found full-time employment. In the past, however, almost no graduates, either by design or circumstance, found part-time jobs, resulting in a larger-than-average unemployment rate.

Occupations

Specialized Administration graduates working full-time two years after graduation were employed mostly as accountants and auditors or administrators in medicine and health in government or the hospital industry. Others were working in a variety of occupations, but particularly in management and administration, systems analysis and the social sciences. Graduates seeking employment face competition primarily from other university graduates (in commerce or economics) and from community college graduates in institutional management.

The Course in Retrospect

A 1984 survey indicates that not only was the transition from school to work less successful for 1982 graduates in this field than for other master's graduates, but also a slightly lower-than-average proportion of them were satisfied with their current job. In spite of this, a slightly greater-than-average proportion stated they would select the same course if they could make the choice again. This apparent contradiction may be partly explained by the fact that, on average, full-time employed graduates were earning almost $5,000 more a year than other master's graduates.

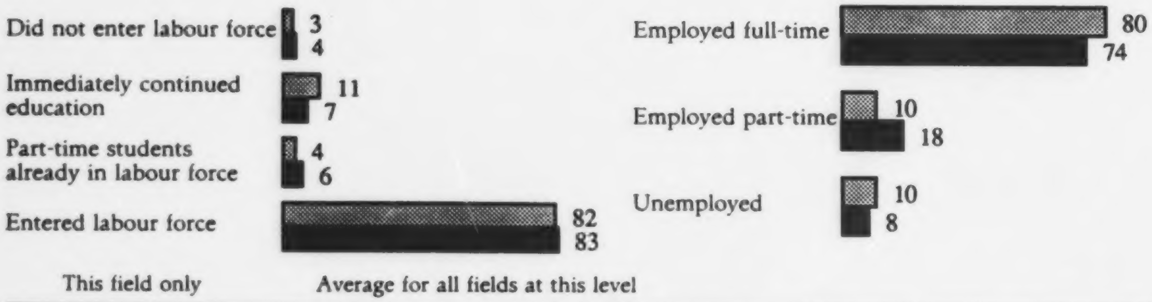
Education and Counselling

Career Program
Community College (2 years)

Graduate Trends and Projections

	1977	1981	1985	1986	1995
Number of Graduates	2,022	2,148	2,361	2,395	2,250
% of Total Community College Graduates	5.4	4.6	4.0	4.0	4.0

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation

47% Teaching

- 27% Elementary, Kindergarten Teachers (2731)
- 14% Teachers (2795)

22% Social Sciences and Related Fields

- 6% Social Workers (2331)
- 7% Welfare and Community Services (2333)

14% Service

6% Clerical

11% Other

Education

Education and Counselling

Career Program
Community College (2 years)

The Education and Counselling field includes such areas of study as early childhood education, industrial arts, adult education, teacher training, addiction counselling, marriage counselling and financial counselling. The prerequisite for entrance into the course varies from institution to institution, but in general, the applicant must pass an interview, have some related work experience, achieve good standing in advanced English courses at the high-school level and, while this is not always necessary, have taken some high-school social science or humanities courses. Education and Counselling is offered in all provinces except Newfoundland, Nova Scotia, New Brunswick and Saskatchewan. The duration of the program varies by province and institution, but on average, spans two years. In some institutions, students may take this course through a CO-OP program. According to 1984 data, roughly 25% of graduates in this field took this route. Most of the students were women and most were concentrated in Ontario.

Graduate Trends and Projections

Enrollments, and therefore graduations, depend on the capacity of the specific faculty to absorb new students and on the demand for entrance. Both these factors are partly influenced by the current and anticipated labour market situation. Since 1981, the annual number of graduates has averaged 2,300. The popularity of this course, as reflected by its share of all community college graduates, declined significantly between 1977 (5.5% of all graduates were from this course) and 1985 (4%). If the course's current popularity and student capacities hold over the 1987 to 1995 period, about 2,300 students should graduate from this course per year. The number of new graduates competing for related employment is therefore expected to be about the same over the projection period as it was over the 1981 to 1985 period.

Destination of Graduates

While an average proportion of graduates from this field entered the labour force upon graduation (83%) and found employment (92%), a much larger proportion (18%) found part-time jobs. Of the graduates who did not enter the labour force, a much smaller-than-average proportion continued their education (7%).

Occupations

Education and Counselling graduates working full-time two years after graduation were employed mostly as teachers, especially as elementary teachers, kindergarten teachers and teachers of exceptional students, or as babysitters in the elementary and secondary education or non-institutional social services (day-care, nursery school, child welfare services) industries. Graduates from this course striving to be elementary or kindergarten teachers generally face job competition from university graduates with a bachelor's degree in elementary/secondary teacher training.

The Course in Retrospect

In view of the high proportion of graduates who found employment, it is not surprising that according to a 1984 survey, a greater-than-average proportion thought their current job matched the field of study (89%) and a lower-than-average proportion believed they were over-qualified (23%). Satisfaction with the course is reflected by the fact that almost 70%, compared with 65% of all college graduates, stated they would select the same course of study if they had to make the choice again.

Education, Non-Teaching

Education

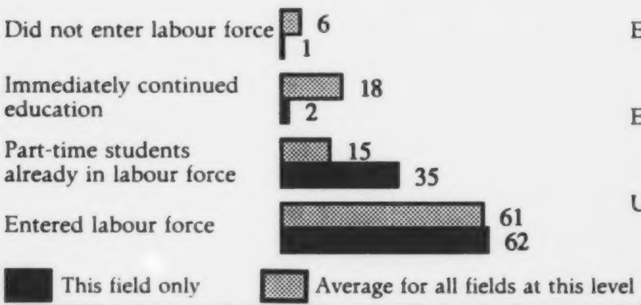
Undergraduate
University (3 years)

Graduate Trends and Projections

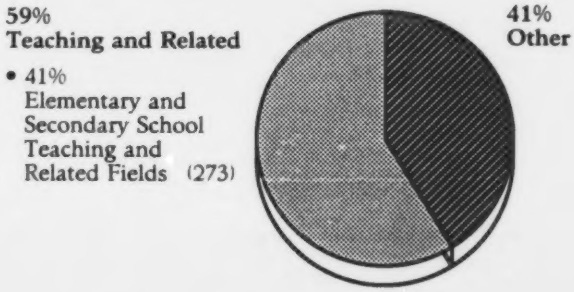
	1971	1981	1985	1986	1995
Number of Graduates	4,220	2,741*	656	675	620
% of Total Undergraduate Degrees	5.8	2.8	0.6	0.6	0.5

* Data for this field of study are currently under review by Statistics Canada. It is recommended that the sum of the three teaching fields (Elementary/Secondary Teacher Training, Other Teaching, and Education, Non-Teaching) be utilized when doing trend analysis.

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation



Education, Non-Teaching

Undergraduate
University (3 years)

The most important Non-Teaching fields, in terms of enrollment, are the measurement and evaluation, education psychology and guidance and counselling areas of specialization. Generally, applicants must possess a high-school diploma (except in Quebec, where a Diploma of Collegial Studies is required) with emphasis on mathematics, biology and social sciences. Persons with a few years of relevant experience in related education fields may also be eligible for some programs leading to a certificate or diploma. Undergraduate programs in this field of study are offered in all provinces except Newfoundland, Prince Edward Island and Saskatchewan. The average age of those who completed the program in 1982 was 30, and most graduates were women (70%).

Graduate Trends and Projections

The number of graduates in this field has decreased drastically since 1971. The downward trend witnessed during the 1970s persisted during the early 1980s, so that by 1985, the graduating population was equal to one-sixth of the 1971 graduating population. Evidently, fewer students were attracted to the field over the 1971 to 1985 period. If the current popularity of this course and the capacity of relevant faculties to absorb new students hold over the 1987 to 1995 period, 650 students should graduate from the course per year. The number of new graduates competing for related employment is therefore expected to be lower over the projection period than it was over the 1981 to 1985 period.

Destination of Graduates

Taking into consideration the high proportion of part-time students, 97% of the graduates from this field were in the labour force upon completion of their program, according to 1984 data. Although the majority found full-time work, they were more likely than other graduates to be employed on a part-time basis. The incidence of part-time work may have helped in producing an unemployment rate below the average for the undergraduate level.

Occupations

Graduates from this major field of study were employed for the most part in the teaching field, especially at the elementary and secondary school levels. Others were distributed throughout other occupations, but were not concentrated in any one. Graduates from this field of study face job competition from college graduates with diplomas or certificates in Education and from master's graduates with a degree in one of the Education specializations.

The Course in Retrospect

In comparison with other graduates at this level, undergraduate degree, certificate and diploma holders in this field of study experienced a relatively more favourable labour market outcome. In particular, their level of satisfaction with their current job was significantly higher than average and they were less likely than others to think that they had more education than required for their job. This may partly explain why about 75% of the graduates, compared with 70% of other undergraduates, stated they would select the same program of study if they had to make that decision again.

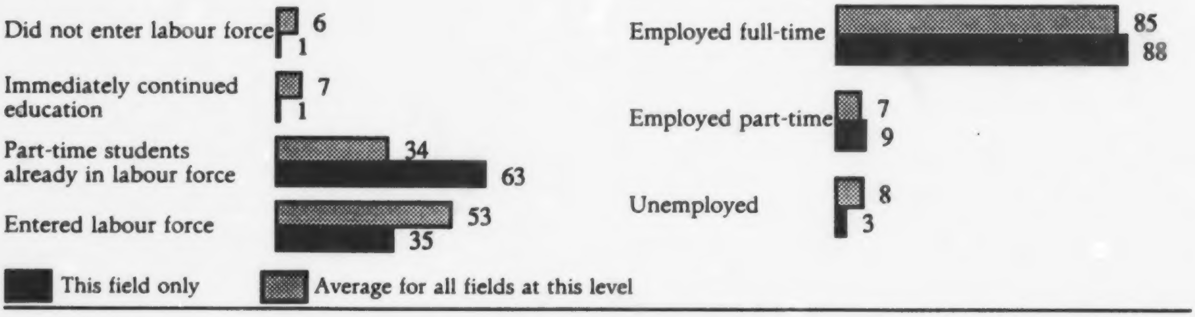
Education, Non-Teaching

Master's
University (2 years)

Graduate Trends and Projections

	1971	1981	1985	1986	1995
Number of Graduates	386	2,025	1,938	1,910	1,730
% of Total Master's Graduates	3.7	14.1	11.6	11.6	11.6

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation

60%
Teaching and Related

- 25% Elementary and Kindergarten Teachers (2731)
- 19% Secondary School Teachers (2733)
- 4% Elementary/ Secondary Teaching and Related (2739)
- 4% Teachers of Exceptional Students (2795)

22%
Management and Administration

- 18% Administrators in Teaching and Related (1133)

13%
Social Sciences and Related Fields

- 8% Education and Vocational Counsellors (2391)
- 3% Social Sciences (231)

5%
Other

Education

Education, Non-Teaching

Master's
University (2 years)

This field includes such areas of study as school librarian, education administrator, education psychologist, guidance and counselling, and measurement and evaluation. The prerequisites for entrance into this field of study vary by institution, but in general, candidates must have an honours undergraduate degree or the equivalent in this or a field of study related to the desired area of specialization. As mentioned in the introduction, holders of graduate diplomas and certificates are included with master's graduates. The diploma and certificate programs are usually shorter than the master's program, and may be taken following either an undergraduate or a master's degree. In this instance, approximately 10% of the 1985 figure shown on the opposite page is attributable to graduate diplomas or certificates. The course is offered in all provinces except Prince Edward Island. Program length varies according to the institution, but is usually two years. At some institutions it is possible to graduate through involvement in a CO-OP program, although according to 1984 data, only a small proportion of the graduates in this field of study (5%) received their degree in this manner. The majority of graduates were women (55%) and were concentrated in Quebec (30%).

Graduate Trends and Projections

Enrollments, and therefore graduations, depend on the capacity of the specific faculty to absorb new students and on the demand for entrance. Both these factors are influenced, in part, by the current and anticipated labour market situation. Since 1981, the annual number of graduates has averaged 1,900. The popularity of this course, as reflected by its share of all master's graduates, rose dramatically during the 1970s but has fallen slightly since 1981. If current course popularity and faculty capacities hold over the 1987 to 1995 period, 1,800 students should graduate from this course per year. The number of new graduates competing for related employment is therefore expected to be slightly lower over the projection period than it was over the 1981 to 1985 period.

Destination of Graduates

The relatively small proportion of graduates who entered the labour force upon completion of their degree (35%) is largely explained by the significantly greater-than-average proportion who were attending school at the same time as they were working (65%). The success of graduates in this field in finding employment was better than the average for all master's fields of study, and is reflected in the significantly lower-than-average unemployment rate (3%).

Occupations

Graduates from this field of study who were working full-time two years after graduation were employed mostly as elementary and kindergarten teachers or education administrators in the education industry. Others were working in various other occupations, particularly in teaching and counselling. Graduates of this course who seek employment as elementary and kindergarten teachers face competition primarily from other university graduates with a bachelor's degree in elementary/secondary teacher training, other teaching or psychology, or a master's degree in elementary/secondary teacher training.

The Course in Retrospect

A 1984 survey of 1982 graduates indicated that although the transition from school to work was much more successful for graduates in this field than for other master's graduates, a significantly greater-than-average proportion thought they possessed more qualifications than their current job required. The survey further indicated that a slightly greater-than-average proportion affirmed their job matched the field of study and were satisfied with their job. In addition, approximately 80% of the graduates indicated that they would follow the same educational route if they had to make the choice again.

Education, Non-Teaching

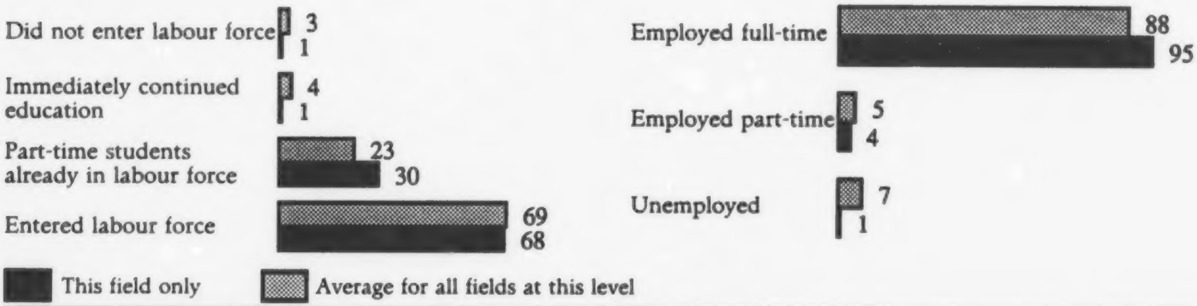
Education

Doctorate
University (4 years)

Graduate Trends and Projections

	1971	1981	1985	1986	1995
Number of Graduates	49	152	118	125	130
% of Total Doctorate Graduates	3.0	8.4	5.9	5.9	5.9

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation

48%
Teaching and Related

- 27%
  University Teachers (2711)

25%
Management and Administration

- 13%
  Administrators in Teaching and Related Fields (1133)

17%
Social Sciences and Related Fields

- 12%
  Psychologists (2315)

10%
Other

Education, Non-Teaching

Doctorate
University (4 years)

This program of study covers many different areas of specialization of which education, psychology and education administration are the most dominant. The basic requirement for entrance to this program is a master's degree or the equivalent. All provinces except the four Atlantic provinces offer the program, which takes approximately four years, depending on the province. A significantly greater proportion of students enroll in the course on a part-time basis than in other fields of study.

Graduate Trends and Projections

The popularity of this course rose dramatically over the 1971 to 1981 period, but has since begun to wane. If current course popularity and the capacity of relevant faculties to absorb new students hold over the 1987 to 1995 period, about 150 students should graduate from this course per year.

Destination of Graduates

A 1984 survey indicated that almost no 1982 graduates from this field of study pursued further training, but most rather entered the labour force, where they were more successful in securing a full-time job than graduates from other fields of study at this level. Only 1% of those who entered the labour force were unable to find a job. The significantly lower-than-average unemployment rate can be explained partly by the large number of graduates who were enrolled on a part-time basis and who probably already had a job.

Occupations

Most of the jobs found by graduates from this field of study were related to teaching, especially university teaching. Other jobs held by graduates were administrative positions in the teaching field and jobs in psychology.

The Course in Retrospect

Among those employed full-time, a lower-than-average proportion thought their job was linked to the program of study. While the level of job satisfaction was comparable to that in other fields of study, a significantly larger proportion of graduates in this field than in others considered they were over-qualified for their current job. An average proportion (80%) stated they would choose the same program if they had to make the choice again.

Elementary/Secondary Teacher Training

Education

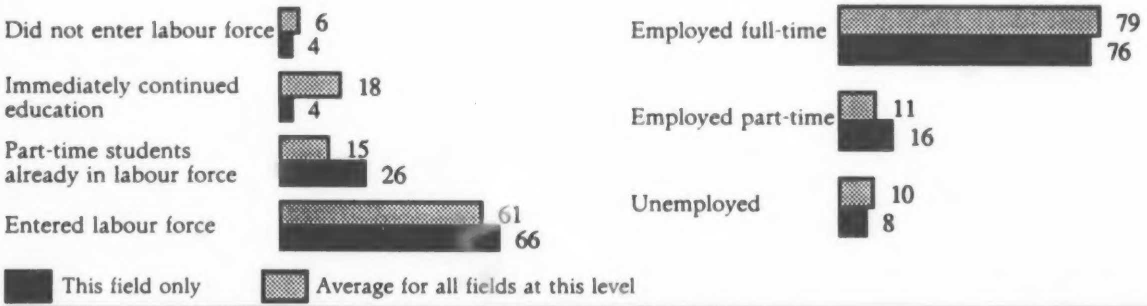
Undergraduate
University (3 years)

Graduate Trends and Projections

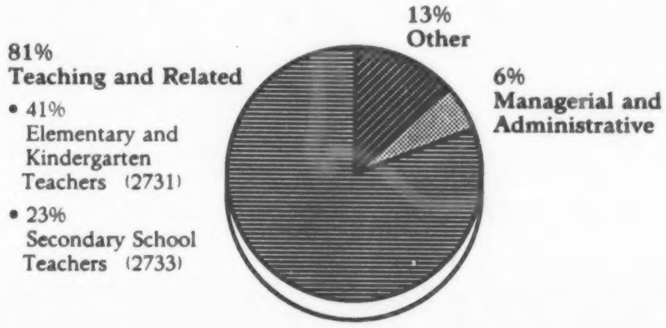
	1971	1981	1985	1986	1995
Number of Graduates	12451	14367*	16136	16740	15760
% of Total Undergraduate Degrees	17.1	14.5	14.2	14.1	13.8

* Data for this field of study are currently under review by Statistics Canada. It is recommended that the sum of the three teaching fields (Elementary/Secondary Teacher Training, Other Teaching, and Education, Non-Teaching) be utilized when doing trend analysis.

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation



Education

Elementary/Secondary Teacher Training

Undergraduate
University (3 years)

This field of study covers many disciplines, such as art education, business education, music education and adult/continuing/extension education. The requirements for admittance to a bachelor's program are generally a high-school diploma, including courses in art, music or theatre, and letters of reference, but they vary according to the area of specialization. In vocational education, for example, a strong background in mathematics and physical sciences as well as a trade qualification may be required. Diplomas and certificates are also offered in this field and have varying admission requirements, although they are usually awarded to persons who already possess a bachelor's degree. The average duration of an undergraduate program in this field is three years; diploma and certificate courses generally take less than three years (depending on the specific discipline) and bachelor's degrees may take longer.

Graduate Trends and Projections

Between 1981 and 1986, an annual average of 16,025 diplomas, certificates and degrees were awarded at this level. This represents a decrease since the 1970s. Generally, the number of diplomas and certificates fluctuates more than the number of bachelor's degrees. In 1985, bachelor's degrees accounted for 30% of all qualifications awarded in this field at the undergraduate level. The field attracted fewer students in the early 1980s than in the 1970s. If the course's current popularity and the capacity of relevant faculties to absorb new students hold over the 1987 to 1995 period, 16,350 students should graduate from the course per year.

Destination of Graduates

According to 1984 data, a much greater-than-average proportion of graduates in this field were enrolled on a part-time basis during their final semester, and a lower-than-average proportion decided to pursue higher education upon graduation. The field is therefore characterized by a greater-than-average level of participation in the labour force. The number of graduates working part-time is greater in this field than in others, and may account for an unemployment rate lower than for other graduates at this level.

Occupations

The majority of graduates in the labour force (75%) had secured a full-time job two years after graduation. Most were employed in teaching occupations at the elementary and secondary school level, while a much smaller number found work in management occupations.

The Course in Retrospect

The labour market outcomes for these graduates appear more favourable than average. A higher proportion of Elementary/Secondary Teacher Training graduates than other graduates reported that their job was related to the program of study and that they were satisfied with their job. Similarly, they were less likely than average to think they were over-qualified for the work they performed. This may explain why about 75% of the graduates, compared with 70% of all undergraduates, stated they would make the same educational choice if they had to make that decision again.

Elementary/Secondary Teacher Training

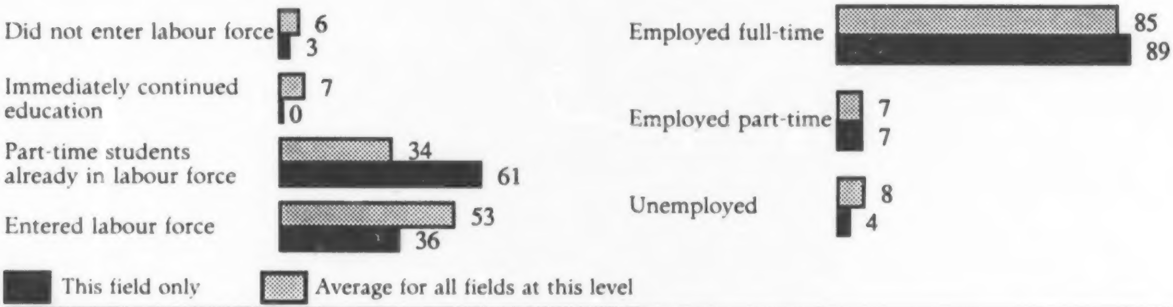
Education

Master's
University (2 years)

Graduate Trends and Projections

	1971	1981	1985	1986	1995
Number of Graduates	1,388	1,109	1,105	1,090	990
% of Total Master's Graduates	13.1	7.7	6.6	6.6	6.6

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation

72%
Teaching and Related

- 23% Secondary School Teachers (2733)
- 18% Elementary/ Kindergarten Teachers (2731)
- 11% Teachers of Exceptional Students (2795)
- 7% Elementary/ Secondary Teaching and Related (2739)
- 5% University Teachers (271)

15%
Management and Administration

- 10% Administrators in Teaching and Related (1133)

6%
Social Sciences and Related Fields

7%
Other

Education

Elementary/Secondary Teacher Training

Master's
University (2 years)

This field of study includes specializations in art education, commercial education, specialized education (for the blind, deaf, gifted and emotionally and socially maladjusted), home economics, music and adult/continuing or extension education. The prerequisites for entrance into this field of study vary by institution, but in general, candidates must have an honours undergraduate degree or the equivalent in this field of study or in a field related to the desired area of specialization. As mentioned in the introduction, holders of graduate diplomas and certificates are included with master's graduates. The diploma and certificate programs are usually shorter than the master's program and may be taken following either an undergraduate or a master's degree. In this instance, approximately 15% of the 1985 figure shown on the opposite page is attributable to graduate diplomas or certificates. The course is offered in all provinces except Newfoundland and Prince Edward Island. The duration of the program varies by institution, but in general, spans two years. At some institutions, it is possible to graduate through involvement in a CO-OP program, although according to 1984 data, only a small proportion of graduates in this field (5%) received their degree, certificate or diploma in this manner. The majority of graduates were women (55%) and were concentrated in Quebec (45%).

Graduate Trends and Projections

Enrollments, and therefore graduations, depend on the capacity of the specific faculty to absorb new students and on the demand for entrance. Both these factors are influenced, in part, by the current and anticipated labour market situation. Since 1981, the annual number of graduates has averaged 1,125. The popularity of this course, as reflected by its share of all master's graduates, declined markedly over the 1971 to 1981 period, but the pace has slackened since that time. If current course popularity and faculty capacities hold over the 1987 to 1995 period, 1,000 students are expected to graduate from this course per year. The number of new graduates competing for related employment is therefore expected to be lower over the projection period than it was over the 1981 to 1985 period.

Destination of Graduates

The relatively small proportion of graduates who entered the labour force upon completion of their degree (35%) is largely explained by the significantly greater-than-average proportion of graduates who attended school part-time and worked part-time (60%). The success of these graduates in finding employment was much better than the average for all other master's graduates, as reflected by the 4% unemployment rate in this field of study.

Occupations

The majority of graduates working full-time two years after graduation were employed mostly as Elementary/Secondary School Teachers in the education industry. The remainder were working in a variety of other occupations, but were concentrated mainly in other teaching areas and in education administration. Graduates of this course searching for employment as secondary school teachers face competition primarily from other university graduates with either a bachelor's degree in this field of study or in physical education or a master's degree in the Education (Non-Teaching) field of study.

The Course in Retrospect

A 1984 follow-up survey of 1982 graduates indicated that, although the transition from school to work had been much more successful for these graduates than for other master's graduates, a larger-than-average proportion deemed they were over-qualified for their current job. In spite of this, slightly more graduates thought their present job matched the field of study and were satisfied with their job. An average proportion of graduates (80%) stated they would follow the same educational route if they could make the choice again.

Elementary/Secondary Teacher Training

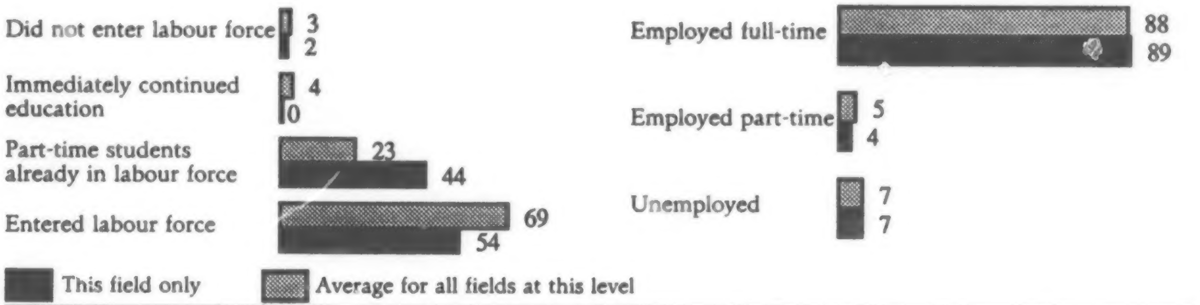
Education

Doctorate
University (4 years)

Graduate Trends and Projections

	1971	1981	1985	1986	1995
Number of Graduates	25	35	71	75	80
% of Total Doctorate Graduates	1.5	1.9	3.6	3.6	3.6

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation

38%
Management and Administration

- 12% General Managers and Other Senior Officials (1130)
- 9% Administrators in Teaching and Related Fields (1133)

32%
Teaching and Related

- 24% University Teachers (2711)

18%
Social Sciences and Related Fields

- 13% Educational and Vocational Counsellors (2391)

12%
Other

Education

Elementary/Secondary Teacher Training

Doctorate
University (4 years)

The prerequisites for admission into this program are a master's degree or the equivalent, a good research aptitude and high standings in the proposed field of specialization. Examples of different types of specialization included at this level are music education, art education, commercial education and special education. All provinces except Newfoundland, Prince Edward Island and New Brunswick offer a PhD program in this field of study. The average length of the program is four years, but this varies according to the province. The higher-than-average age of these graduates (44) is partly explained by the fact that many are enrolled on a part-time basis and have already spent several years in undergraduate and master's programs.

Graduate Trends and Projections

The number of PhD recipients in this course almost tripled between 1971 and 1985. During the same period, course popularity, in terms of graduates in this field of study relative to all other fields of study at the PhD level grew from 1.5% to 3.6%. If the current popularity of this course and the capacity of relevant faculties to absorb new students hold over the 1987 to 1995 period, about 80 students should graduate from this course per year.

Destination of Graduates

Given the number of graduates enrolled part-time in this field while already in the labour force, the proportion of graduates who entered the labour force was significantly lower than average, according to 1984 data. The majority of graduates found full-time work.

Occupations

Two years after obtaining their degree, about 40% of the graduates from this program were working in management and administrative occupations, while another 25% were teaching at the university level. Others found employment as educational and vocational counsellors.

The Course in Retrospect

Although a significantly higher-than-average proportion of graduates in this program thought they were over-qualified for their present job, their work was related to the program of study and they were satisfied with their jobs. This level of satisfaction partly explains why an average number stated they would make the same educational choice if they had to decide again.

Physical Education

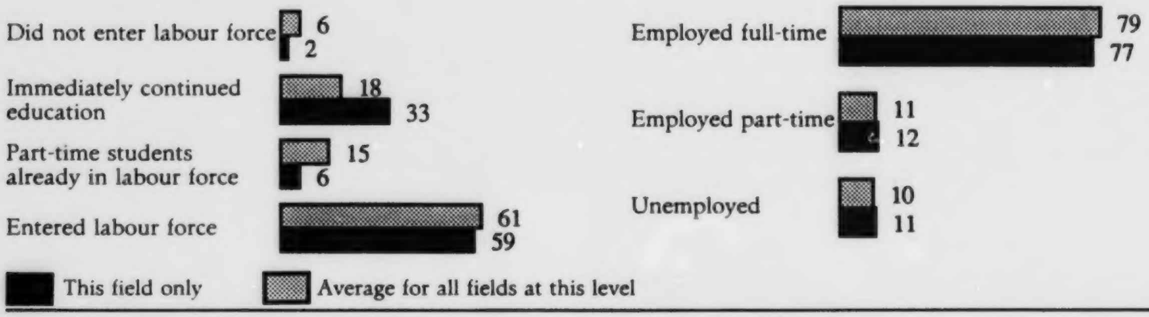
Education

Undergraduate
University (4 years)

Graduate Trends and Projections

	1971	1981	1985	1986	1995
Number of Graduates	1,309	3,003	2,787	2,940	2,849
% of Total Undergraduate Degrees	1.8	3.0	2.5	2.5	2.5

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation

42%
Teaching and Related

- 10%
  Elementary and Kindergarten Teachers (2731)

12%
Artistic, Literary, Recreational and Related

- 10%
  Coaches, trainers and instructors, sports and recreation (3370)

12%
Managerial and Administrative

34%
Other

Physical Education

Undergraduate
University (4 years)

The Physical Education field of study includes disciplines such as physical education, kinanthropology, recreation and kinesiology. Candidates must have completed a high-school diploma with courses in biology, mathematics, chemistry and physics. Interviews and physical fitness tests are also part of the conditions of admission in most institutions. The average duration of the program is four years, although some institutions offer diploma or certificate programs lasting one year. The possibility also exists of obtaining a bachelor's degree through involvement in a CO-OP program, where the student spends part of the year in school and part working in related employment. According to 1984 data, roughly 10% of the graduates in this field received their qualification through this route. Only the province of Prince Edward Island did not offer any program related to Physical Education at this level. The average age at graduation (24) in 1982 was marginally lower than the average (26), and an equal number of men and women graduated from the program.

Graduate Trends and Projections

The popularity of this major field of study increased markedly over the 1970s; the number of graduates more than doubled between 1971 and 1981. Since then, the number of graduates has decreased slightly, although it remains at a level higher than the annual average for the 1971 to 1981 period. In 1985, 2.5% of the graduates at the undergraduate level were from this field. If the program's current popularity and the capacity of relevant faculties to absorb new students hold over the 1987 to 1995 period, 3,000 students should graduate from the course per year.

Destination of Graduates

A much greater-than-average proportion of graduates in this field pursued higher education upon completion of their program. The success of those who sought employment was comparable to the average in other fields: about 75% found full-time jobs and 10% remained unemployed two years after graduation.

Occupations

Most graduates employed full-time were working in the teaching field, particularly in elementary school teaching. Other graduates found jobs in management and administration as well as in recreation as coaches and instructors. Graduates in this field generally face job competition from college graduates in education or recreation and sport and from university graduates with degrees in physical education at the master's and doctorate levels.

The Course in Retrospect

Graduates in Physical Education were slightly more positive about the labour market outcome of their educational choice than other graduates at this level. Their satisfaction with their current job was higher than average, although they were less likely than others to indicate they would enroll in the same program of study if they had to make that choice again. A much greater proportion of graduates in Physical Education at the master's and doctorate levels reported they would select the same program again.

Physical Education

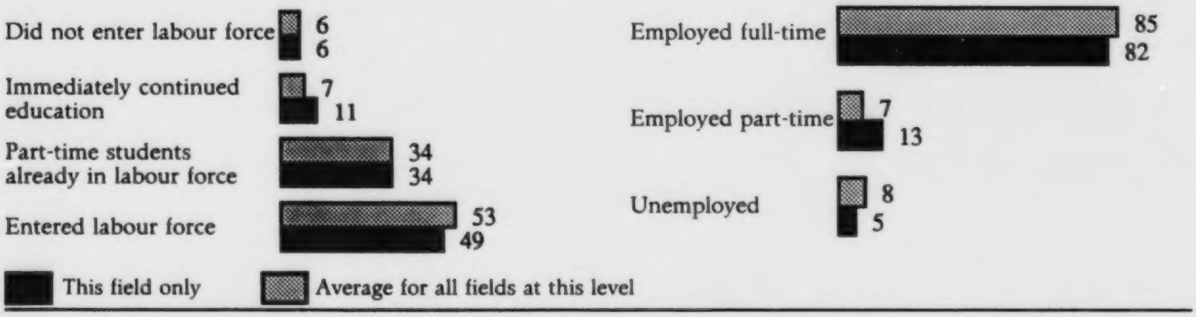
Education

Master's
University (2 years)

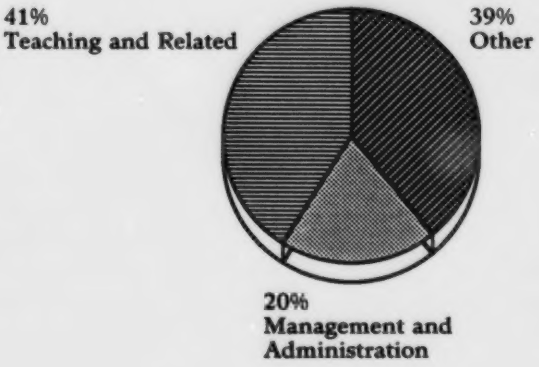
Graduate Trends and Projections

	1971	1981	1985	1986	1995
Number of Graduates	52	195	211	210	190
% of Total Master's Graduates	0.5	1.4	1.3	1.3	1.3

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation



Physical Education

Master's
University (2 years)

The Physical Education field includes studies in kinesiology, human kinetics, kinanthropology, recreation and, of course, Physical Education. The prerequisites for entrance into this program vary by institution, but in general, candidates must have an honours undergraduate degree or the equivalent in this or a closely related field of study from a recognized university, and must demonstrate proficiency in a chosen sport. As mentioned in the introduction, holders of graduate diplomas and certificates are included with master's graduates. The diploma and certificate programs are usually shorter than the master's program and may be taken following either an undergraduate or a master's degree. In this instance, however, all the 1985 graduates received degrees as opposed to a certificate or diploma. The master's program is offered in all provinces except Prince Edward Island and generally lasts two years, depending on the institution. According to 1984 data, the majority of graduates were men (55%) and were concentrated in Quebec (35%).

Graduate Trends and Projections

Enrollments, and therefore graduations, depend on the capacity of the specific faculty to absorb new students and on the demand for entrance. Both these factors are influenced, in part, by the current and anticipated labour market situation. Since 1981, the annual number of graduates has averaged 200. The popularity of this course, as reflected by its share of all master's graduates, rose significantly over the 1971 to 1981 period and has remained fairly stable since then. If current course popularity and faculty capacities hold over the 1987 to 1995 period, about 200 students should graduate from this course per year. The number of new graduates competing for related employment is therefore expected to remain about the same over the projection period as it was over the 1981 to 1985 period.

Destination of Graduates

According to the 1984 data, a slightly lower-than-average proportion of graduates from this field entered the labour force upon graduation. More of them than other master's graduates continued their education, and an average proportion (35%) were already in the labour force and were attending school on a part-time basis. The success of graduates who looked for employment was slightly better than for other master's graduates largely because those who were unable to find full-time employment were at least able to find part-time jobs.

Occupations

Physical Education graduates who were employed full-time two years after graduation were working mostly in teaching and related occupations in education. Others were working in a variety of occupations, particularly in management and administration. Graduates of this course who seek employment face competition primarily from undergraduates, other master's degree holders (physical education, elementary/secondary teacher training) and community college graduates with a diploma or certificate in recreation and sport.

The Course in Retrospect

A 1984 survey of 1982 graduates indicated that not only was the transition from school to work more successful for graduates in this field than for other master's graduates, but a significantly lower-than-average proportion of graduates thought they possessed more qualifications than their current job required. The survey further indicated that in spite of the slightly lower-than-average number who thought their job matched their field of study, almost all (99%) were satisfied with the job they had. However, 70% of graduates in this field, compared with 80% of all master's graduates, indicated that they would follow the same educational route if they had to make this choice again.

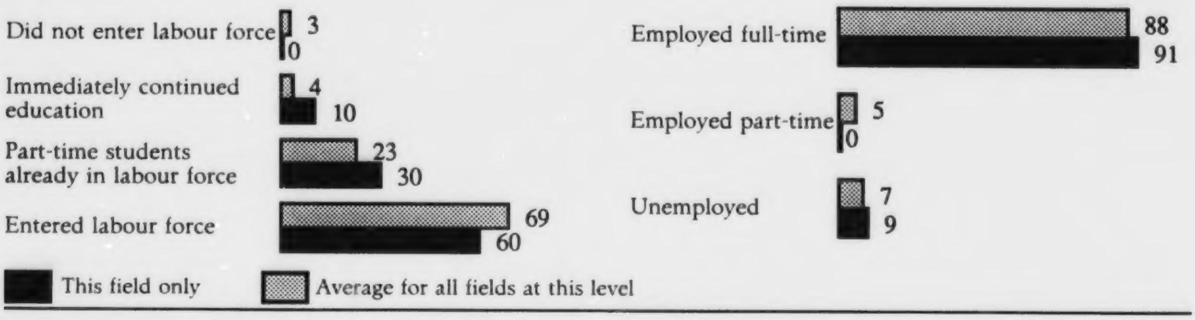
Physical Education

Doctorate
University (3 years)

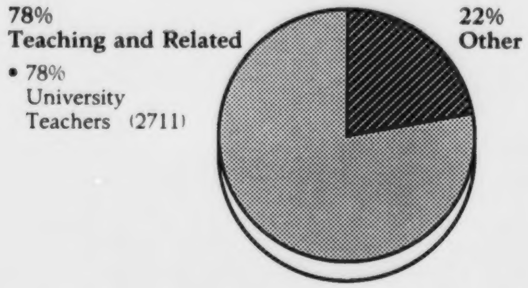
Graduate Trends and Projections

	1971	1981	1985	1986	1995
Number of Graduates	3	12	15	15	15
% of Total Doctorate Graduates	0.2	0.7	0.8	0.8	0.8

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation



Education

Physical Education

Doctorate
University (3 years)

The basic requirement for entrance to this program of study is a master's degree or the equivalent. The program includes specializations in kinesiology, human kinetics, kinanthropology and recreation, and takes an average of three years. It is offered in half the provinces (Quebec, Ontario, Saskatchewan, Alberta and British Columbia).

Graduate Trends and Projections

The number of doctoral degrees awarded in this field of study increased from three in 1971 to 15 in 1985. Despite this increase, the numbers are still fairly low. If the course's current popularity and the capacity of relevant faculties to absorb new students hold over the 1987 to 1995 period, 20 students per year should graduate from this course.

Destination of Graduates

According to 1984 data, graduates from this program either continued their education or entered the labour force upon completion of their degree. They tended to pursue further schooling to a larger extent than other doctoral graduates. Those who entered the labour force were, on average, marginally more successful in securing a full-time job than other PhD graduates.

Occupations

The majority of Physical Education graduates were working as university teachers two years after graduation, while a smaller proportion were employed in various other occupations.

The Course in Retrospect

A 1984 follow-up survey of graduates from this field of study indicated a greater-than-average level of satisfaction with current employment. They had a better-than-average belief that their job, their program of study and their qualifications were all related. A slightly greater-than-average proportion of graduates stated they would select the same program of study if they had to make the choice again.

Sports and Recreation

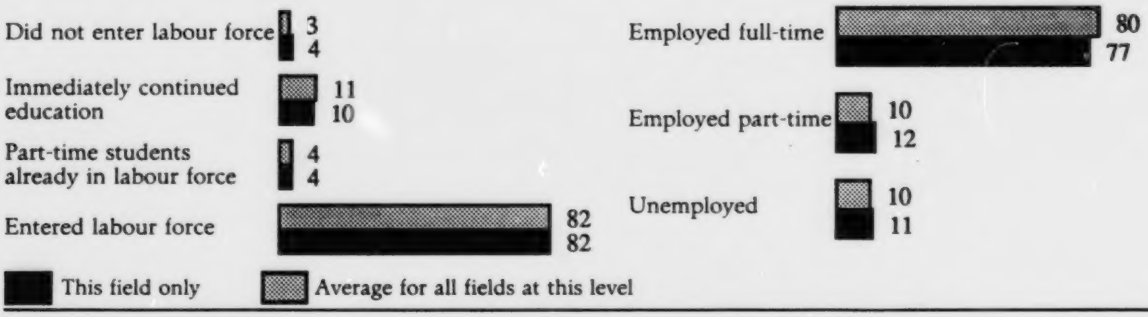
Education

Career Program
Community College (2 years)

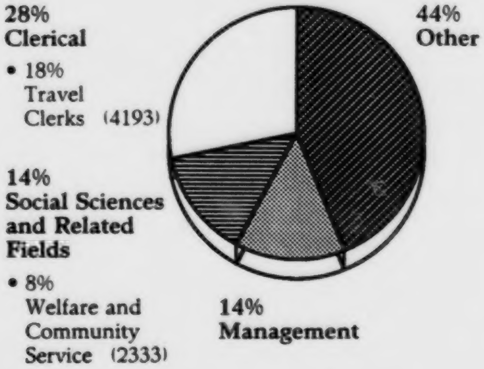
Graduate Trends and Projections

	1977	1981	1985	1986	1995
Number of Graduates	1,247	1,534	1,555	1,575	1,485
% of Total Community College Graduates	3.3	3.3	2.7	2.7	2.7

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation



Sports and Recreation

Career Program
Community College (2 years)

The sports and recreation field of study includes such areas as recreational leadership, physical education instructor, travel agent/counsellor, ticket agent and parks/forests/wildlife officers. The prerequisite for entrance into the course varies from institution to institution, but in general, applicants must write a diagnostic English test, have some related work experience and have achieved good standing in high-school English, mathematics, and biology. In addition, candidates must pass a medical examination and a proficiency test in the chosen sport. The course is offered in all provinces except Prince Edward Island, Nova Scotia, New Brunswick, Manitoba and Saskatchewan, and usually takes two years, depending on the province and the institution. In some institutions, it is possible to take this course through a CO-OP program. According to 1984 data, roughly 25% of graduates were from a CO-OP program. Most students in the Recreation and Sport field of study are women (80%) and are concentrated in Ontario.

Graduate Trends and Projections

Enrollments, and therefore graduations, depend on the capacity of the specific faculty to absorb new students and on the demand for entrance. Both these factors are partly influenced by the current and anticipated labour market situation. Since 1981, the annual number of graduates has averaged 1,550. The popularity of this course, as reflected by its share of all community college graduates, declined between 1977 (3.3% of all graduates were from this course) to 1985 (2.7%). If the current situation holds over the 1987 to 1995 period, it is expected that, given declining population and thus enrollments, 1,500 recreation and sport students will graduate each year.

Destination of Graduates

While an average proportion of these graduates (82%) entered the labour force and found employment (89%), a larger proportion than average (12%) were employed on a part-time basis. Of the graduates who did not enter the labour force, an average proportion continued their education (10%).

Occupations

Sports and Recreation graduates who were employed full-time two years after graduation were working mostly as travel clerks, welfare and community service workers, or managers in the travel service or health and social science industries. Graduates from this course hoping to be travel clerks, for example, face job competition from other social science graduates at the trade/vocational level and from university graduates with a bachelor's degree in geography.

The Course in Retrospect

In general, Sports and Recreation graduates were as satisfied with their current employment and the match between their job and the field of study as other community college graduates. In spite of this, many thought they possessed more qualifications than their current job required. A slightly less-than-average proportion of Sports and Recreation graduates stated they would follow the same educational route if they had to make the choice again.

Teaching (Other)

Education

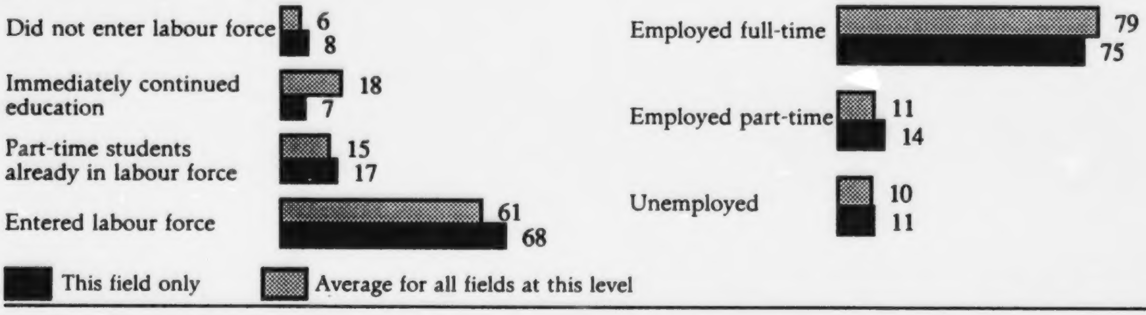
Undergraduate
University (3 years)

Graduate Trends and Projections

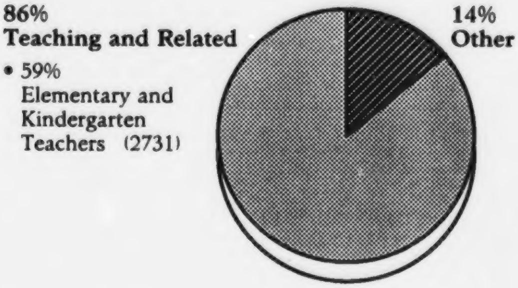
	1971	1981	1985	1986	1995
Number of Graduates	22	2,493*	1,163	1,215	1,150
% of Total Undergraduate Degrees	0.0	2.5	1.0	1.0	1.0

* Data for this field of study are currently under review by Statistics Canada. It is recommended that the sum of the three teaching fields (Elementary/Secondary Teacher Training, Other Teaching, and Education, Non-Teaching) be utilized when doing trend analysis.

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation



Education

Teaching (Other)

Undergraduate
University (3 years)

This field of study involves the training of teachers for both the pre-school and post-secondary levels. The usual prerequisite is a high-school diploma (or a Diploma of Collegial Studies, in the province of Quebec) with high standing in humanities and sciences and, for those specializing in early childhood education, experience in the care of young children. The post-secondary teacher training program is offered to applicants who already have an acceptable first degree from a recognized university. The average duration of the bachelor's program varies between three and five years, depending on the institution. The diploma and certificate programs usually last less than two years. All provinces offer at least one of the two types of training (pre-school or post-secondary). Students who graduated in this field of study in 1982 had an average age of 28 and were mostly women.

Graduate Trends and Projections

The number of undergraduate qualifications awarded in this field has fluctuated since 1971, even excluding the figure for 1981. On an annual average basis, more qualifications were awarded during the first half of the 1980s than during the 1970s. In recent years, graduates in this field have represented 1% of all graduates at this level. If the current popularity of this course and the capacity of relevant faculties to absorb new students hold over the 1987 to 1995 period, 1,200 students should graduate from the course per year. The number of new graduates competing for related employment is therefore expected to be slightly lower over the projection period than it was over the 1981 to 1985 period.

Destination of Graduates

According to 1984 data, the transition from school to labour market of graduates in this field was comparable to that in other fields. Graduates in this field, however, were less likely to pursue higher education. The majority entered the labour force and about 90% found work.

Occupations

Of all the graduates in teaching, graduates from this field were the most likely to find employment related to teaching. Two years after graduation, about 60% of those employed were working as elementary or kindergarten teachers. Graduates face job competition primarily from college graduates with diplomas or certificates in education and from university graduates with a master's degree in one of the education fields of study.

The Course in Retrospect

The jobs of graduates in this field corresponded more to the program of study than of graduates in other teaching fields. Graduates employed full-time had a high level of job satisfaction, and fewer than average thought they were over-qualified for their current employment. Despite these favourable assessments, 40% of the graduates, as compared with 30% of all undergraduates, stated they would not select the same program if they had to make the choice again.

Teaching (Other)

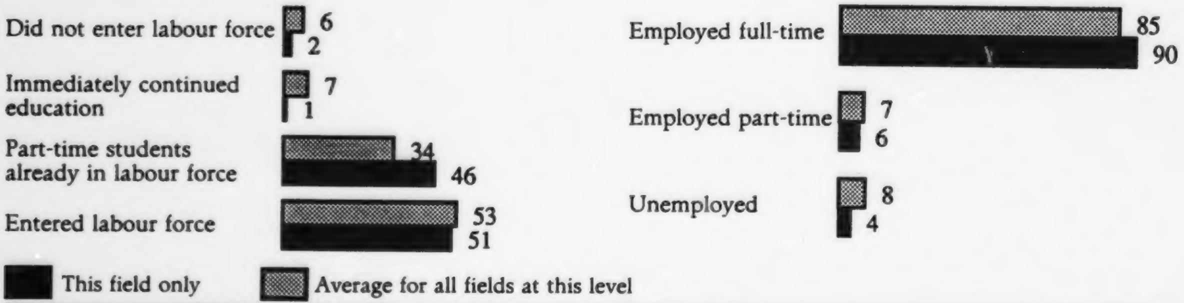
Education

Master's
University (2 years)

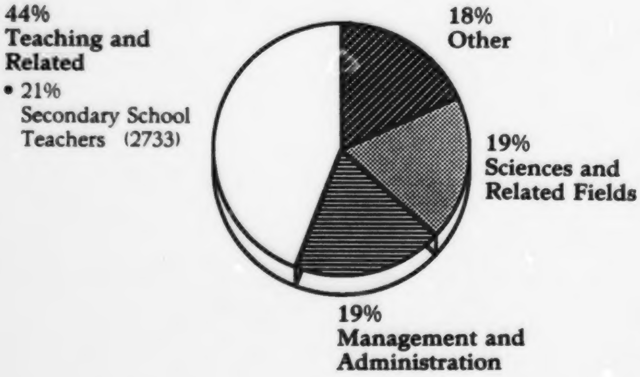
Graduate Trends and Projections

	1971	1981	1985	1986	1995
Number of Graduates	8	154	94	95	85
% of Total Master's Graduates	0.1	1.1	0.6	0.6	0.6

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation



Education

Teaching (Other)

Master's
University (2 years)

This field includes programs of study in higher education (post-secondary teacher training), kindergarten and pre-school teacher training. The prerequisites for entrance vary by institution, but in general, candidates must have an honours undergraduate degree or the equivalent in this or a field of study related to the desired area of specialization. Holders of graduate diplomas and certificates are included with master's graduates. The diploma and certificate programs are usually shorter than the master's program and may be taken following either an undergraduate or a master's degree. In this instance, almost all (80%) of the 1985 figure shown on the opposite page is attributable to graduate diplomas or certificates. The course is offered in only four provinces (Quebec, Ontario, Alberta and British Columbia). It generally takes two years, depending on the institution. At some universities, students may graduate through involvement in a CO-OP program. According to 1984 data, roughly 10% of graduates in this field received their degree, certificate, or diploma in this manner. The majority of these graduates were women (60%) and were concentrated in Quebec (70%).

Graduate Trends and Projections

Enrollments, and therefore graduations, depend on the capacity of the specific faculty to absorb new students and on the demand for entrance. Both these factors are influenced, in part, by the current and anticipated labour market situation. Since 1981, the annual number of graduates has averaged 125. The popularity of this course, as reflected by its share of total master's graduates, rose significantly between 1971 and 1981 but has since lost ground to other fields of study. If current course popularity and the faculty capacities hold over the 1987 to 1995 period, about 100 students per year should graduate from this course. The number of new graduates competing for related employment is therefore expected to be lower over the projection period than it was over the 1981 to 1985 period.

Destination of Graduates

The small proportion of graduates who entered the labour force upon completion of their degree (50%) is largely explained by the significantly greater-than-average proportion of graduates who were attending school at the same time as they were working (45%). The success of these graduates in finding employment was better than the average for all master's graduates, as reflected by their 4% unemployment rate.

Occupations

According to 1984 data, graduates working full-time two years after graduation were employed mostly as secondary school teachers. Others were employed in a variety of occupations, particularly in management and administration and social science occupations. Graduates seeking employment as elementary/secondary school teachers face competition primarily from other university graduates with a bachelor's or master's degree in elementary/secondary teacher training, education (non-teaching), physical education or English.

The Course in Retrospect

A 1984 survey indicated that although the transition from school to work for 1982 graduates in this field was much more successful than for other master's graduates, a slightly greater-than-average proportion believed they possessed more qualifications than their job required. The survey further indicated that an average proportion were satisfied with their job, and almost all (99%) thought their present job matched their field of study. On average, approximately 70% of the graduates, compared with 80% of all master's graduates, would select the same course if they had to choose again.

Architectual Design/Draughting Technologies

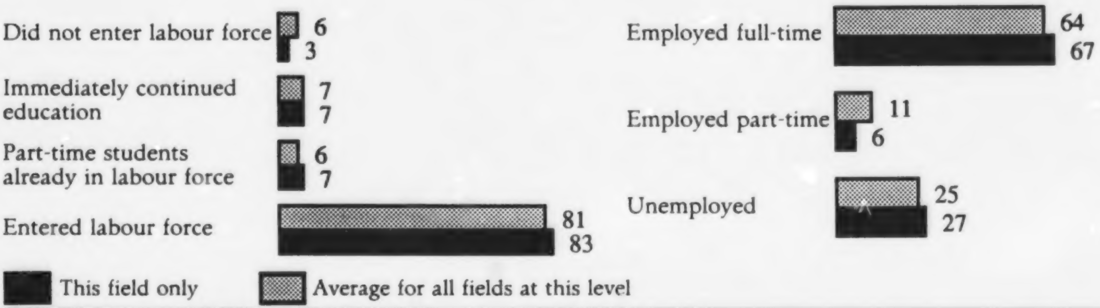
Trade/Vocational Programs
Public Trade Schools and Similar Institutions (10 months)

Graduate Trends

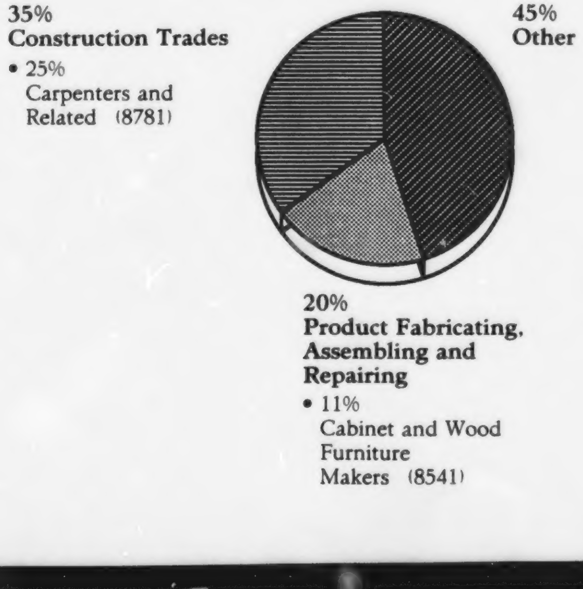
	1983-84*
Number of Graduates	178
% of Total Trade/Vocational Graduates	0.2

* This is the only period, since 1977, for which comprehensive and reliable data covering all provinces, territories and fields of study were available. Given this lack of historical data and the recent release of the data for 1983-84, no projections are yet available.

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation



Architectural Design/Draughting Technologies

Trade/Vocational Programs
Public Trade Schools and Similar Institutions (10 months)

This field of study offers such programs as draughting (architectural/structural), architectural art, civil and structural technology and layout design. The minimum qualifications necessary for entrance vary, depending on the type of program, the institution and the province. Graduates of the course in 1982 had, on average, a high-school diploma before enrollment, and most were residing in the provinces of Newfoundland, Prince Edward Island, Nova Scotia and Manitoba. The average duration of the program is 10 months, although this may vary according to the type of program (pre-employment or skill upgrading). Graduates in 1983-1984 had an average age of 25 and most were men (90%).

Graduate Trends and Projections

For the 1983-1984 period, 178 successful completers were reported in this training program, representing less than 1% of all graduates in that period. If the course's current popularity and capacities of the faculty to absorb new students hold over the 1987 to 1995 period, the average annual number of graduates should decline slightly, as a result of the decreasing size of the corresponding population age group.

Destination of Graduates

According to the 1984 data, a slightly greater-than-average proportion of the graduates from this field of study entered the labour force upon completion of their program. They were not quite as successful in their job search as other trade/vocational graduates, as reflected by their 27% unemployment rate.

Occupations

Graduates working full-time two years after graduation were employed mostly in construction trades in carpentry and related occupations, or in product fabricating and assembling occupations (cabinet and wood furniture makers). Others were working in various occupations in numbers too small to be reported.

The Course in Retrospect

Graduates from this field of study experienced a labour market situation comparable to that faced by other graduates at this level, as indicated by the way they rated their current job. However, a significantly higher-than-average proportion reported they would be ready to select the same training program if they had to make this decision again.

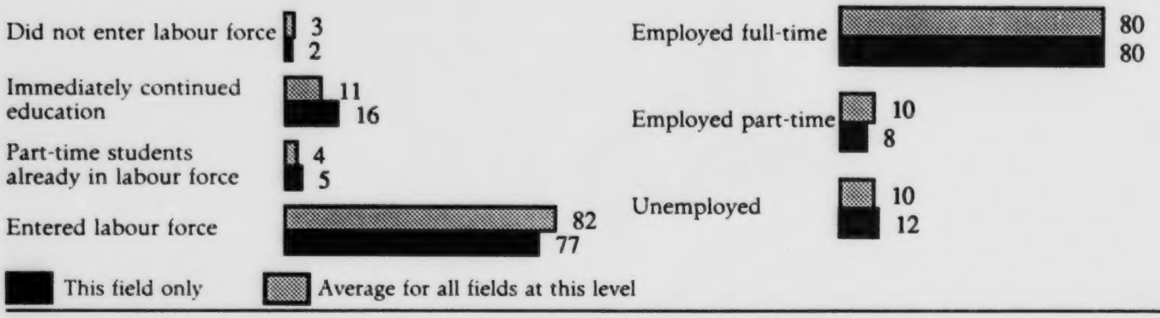
Architectural Design/Draughting Technologies

Career Program
Community College (3 years)

Graduate Trends and Projections

	1977	1981	1985	1986	1995
Number of Graduates	642	734	725	735	690
% of Total Community College Graduates	1.7	1.6	1.2	1.2	1.2

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation

50%
Natural Sciences, Engineering and Mathematics

- 19%
  Draughting (2163)
- 7%
  Engineering, Technologists and Technicians (2165)
- 7%
  Architectural Technologists and Technicians (2164)

13%
Management

- 5%
  Accountants, Auditors and Other Financial Officers (1171)

11%
Construction

26%
Other

Engineering and Engineering Technologies

Architectural Design/Draughting Technologies

Career Program
Community College (3 years)

This field includes programs of study in architectural and structural draughting, architectural art, civil and structural technologies, draughting and layout design. The prerequisites for entrance into the field vary by institution, but in general, candidates must have completed senior-level high-school courses in mathematics, English, physics, chemistry and draughting. The Architectural Design/Draughting Technologies program is offered in all provinces. The duration of the program varies according to the institution, but usually spans three years. According to 1984 data, roughly 5% of graduates in this field received their certificate or diploma through a CO-OP program. The majority of graduates were men (80%) and were concentrated in Ontario (45%).

Graduate Trends and Projections

Enrollments, and therefore graduations, depend on the capacity of the specific faculty to absorb new students and on the demand for entrance. Both these factors are influenced, in part, by the current and anticipated labour market situation. Since 1981, the annual number of graduates has averaged 725. The popularity of this course, as indicated by its share of all community college graduates, was fairly constant over the 1977 to 1981 period, but has declined slightly since then. If the course's current popularity and faculty capacities hold over the 1987 to 1995 period, about 700 students should graduate from this course per year. The number of new graduates competing for related employment is therefore expected to be slightly lower over the projection period than it was over the 1981 to 1985 period.

Destination of Graduates

According to 1984 data, upon graduation, fewer Architectural Design/Draughting graduates than other college graduates entered the labour force, while a greater-than-average number continued their education. Graduates who sought employment had slightly more difficulty in finding a job than graduates from other college fields of study.

Occupations

Architectural Design/Draughting graduates working full-time two years after graduation were employed mostly as draughtspersons in the architectural, engineering and other scientific and technical service industries. Others were working in a variety of occupations, particularly in engineering and architectural technologist and technician occupations. Graduates seeking jobs in draughting face competition primarily from other college graduates (in other engineering technologies), from trade/vocational graduates (draughting) and from university graduates with a bachelor's degree in architecture.

The Course in Retrospect

Although the transition from school to work was slightly more difficult than average for graduates from this field, a greater-than-average proportion of them were satisfied with their current job and were unlikely to think themselves over-qualified. However, in keeping with slightly higher-than-average unemployment in this field, a low rate of correspondence between field of study and job and the slightly lower-than-average annual salaries of these graduates, only about 50%, compared with 65% of all college graduates, stated they would select the same course if they had to choose again.

Construction Technologies

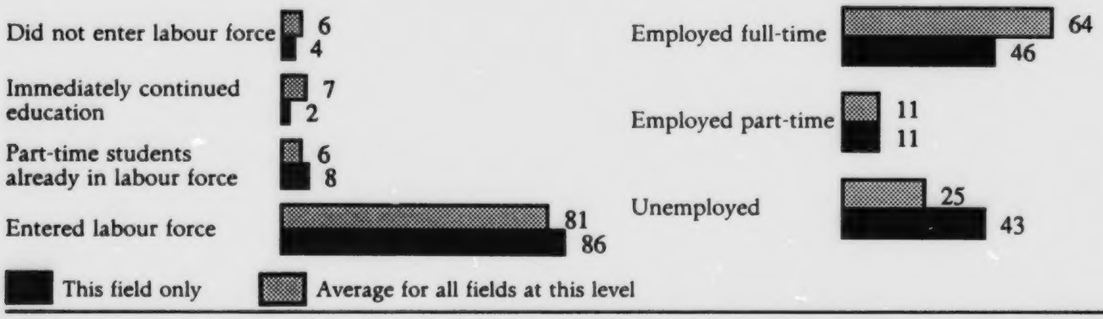
Trade/Vocational Programs
Public Trade Schools and Similar Institutions (11 months)

Graduate Trends

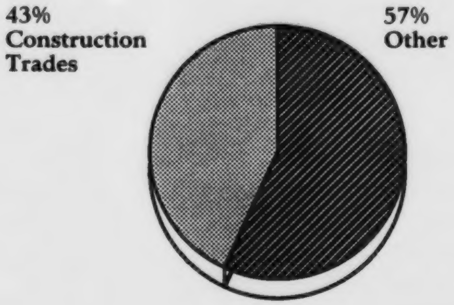
	1983-84*
Number of Graduates	3.581
% of Total Trade/Vocational Graduates	4.8

* This is the only period, since 1977, for which comprehensive and reliable data covering all provinces, territories and fields of study were available. Given this lack of historical data and the recent release of the data for 1983-84, no projections are yet available.

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation



Construction Technologies

Trade/Vocational Programs
Public Trade Schools and Similar Institutions (11 months)

This field of study covers training programs in masonry, plastering, heat/insulation, plumbing, construction electrician work, interior finishing, metal working, woodworking and carpentry. The minimum entrance qualifications vary according to the type of program (pre-employment or skill upgrading), the institution and the province although a 1984 survey indicated that generally, graduates of these programs had completed secondary school before enrollment in their course. The average duration of these programs is approximately 11 months. All provinces and territories, with the exception of Prince Edward Island and the Yukon, offered this course in 1983-1984. The graduating population was younger than average, and women accounted for only 3%.

Graduate Trends and Projections

In 1983-1984, there were close to 3,600 successful completions in this field of study, representing approximately 5% of all completions at this level. If the current popularity of this course and the capacity of the faculty to absorb new students hold over the 1987 to 1995 period, the average annual number of graduates is expected to decline slightly as a result of the declining size of the corresponding population age group.

Destination of Graduates

According to the 1984 data, more graduates from these training programs than from other fields entered the labour market, although their employment rate was much higher than average, and a lower-than-average number of them found full-time jobs.

Occupations

Almost half the graduates who had looked for work were employed full-time two years after graduation. A significant proportion were working in construction trades. The 1984 survey results do not permit a finer occupational breakdown.

The Course in Retrospect

Given the less-than-favourable labour market conditions faced by graduates from this field, it is no surprise that they were unlikely to have jobs related to their training program. This may partly explain why a significantly higher-than-average proportion thought they had more education than required for their current job. Only about 55%, compared to 60% of other trade/vocational graduates, stated that they would take the same educational program if they had to make that decision again.

Welding Technologies

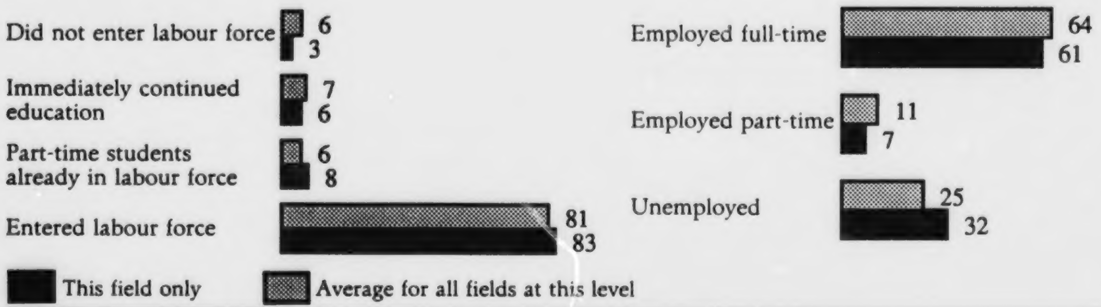
Trade/Vocational Programs
Public Trade Schools and Similar Institutions (9 months)

Graduate Trends

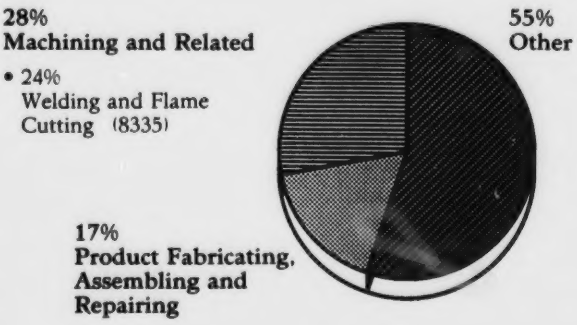
	1983-84*
Number of Graduates	6,461
% of Total Trade/Vocational Graduates	8.6

* This is the only period, since 1977, for which comprehensive and reliable data covering all provinces, territories and fields of study were available. Given this lack of historical data and the recent release of the data for 1983-84, no projections are yet available.

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation



Welding Technologies

Trade/Vocational Programs
Public Trade Schools and Similar Institutions (9 months)

This field of study includes all training programs related to welding, such as electric welding, pipeline welding, shipyard welding and structural steel fitting and welding. While the prerequisites for admittance to one of these programs vary according to the type of program (pre-employment or skill upgrading), the institution and the province, a 1984 survey indicated that on average, graduates completed high school before enrolling in these courses. The programs last about nine months, and in 1983-1984 were offered by all provinces and territories except Quebec. Almost all graduates in 1983-1984 were men (99%).

Graduate Trends and Projections

Approximately 6,460 successful completions were reported in these training programs in 1983-1984, accounting for 9% of all completiuons, and making this field one of the largest areas of training at this level. If the current popularity of this field and the capacity of relevant faculties to absorb new students hold over the 1987 to 1995 period, the average annual number of graduates should decline slightly, owing to the declining size of the corresponding population age group.

Destination of Graduates

According to the 1984 data, a slightly greater-than-average proportion of graduates from these training programs looked for employment. However, their success in the labour market was less than favourable: almost one-third were unable to find jobs.

Occupations

Among the graduates who did find full-time employment within two years after graduation, a significant proportion were working in welding and flame cutting occupations. Others found work in product fabricating and assembling, and in many other areas, which do not show any significant occupational pattern.

The Course in Retrospect

Considering the high unemployment rate in this field and the variety of occupations entered by these graduates, it is not surprising that only half the graduates employed full-time had jobs related to their educational program. Graduates in this course of study were also more likely than others to feel over-qualified for their current job, and a smaller-than-average proportion stated they would repeat the same educational program if they had to make the decision again.

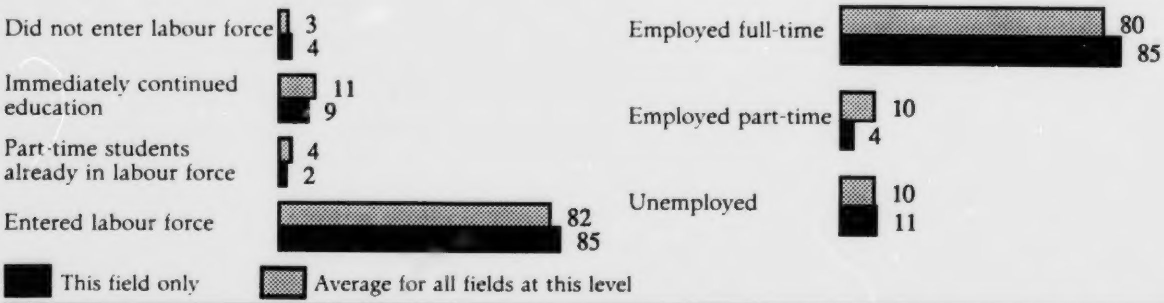
Other Architectural and Construction Technologies

Career Program
Community College (2 years)

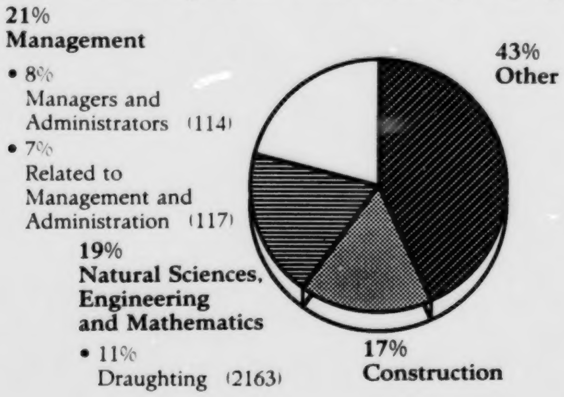
Graduate Trends and Projections

	1977	1981	1985	1986	1995
Number of Graduates	319	523	670	680	640
% of Total Community College Graduates	0.9	1.1	1.1	1.1	1.1

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation



Other Architectural and Construction Technologies

Career Program
Community College (2 years)

This field of study includes programs in masonry, drywall, heating/insulation, plumbing, construction electrician work, metal working, interior finishing, woodworking and carpentry, and welding. The prerequisites for entrance to these programs vary by institution, but in general, candidates must pass an interview, take an aptitude test, and have completed (at the high-school level) senior courses in mathematics and draughting. Although not compulsory, courses in English (French), physics and chemistry, and electrical/electronics courses are recommended. The field of study is offered in all provinces and generally takes two years, depending on the institution. According to 1984 data, roughly 15% of the graduates in this field of study received their certificate or diploma through a CO-OP program. The majority of graduates were men (90%) and were concentrated in Quebec (50%).

Graduate Trends and Projections

Enrollments, and therefore graduations, depend on the capacity of the specific faculty to absorb new students and on the demand for entrance. Both these factors are influenced, in part, by the current and anticipated labour market situation. Since 1981, the annual number of graduates has averaged 625. The popularity of this course, as indicated by its share of all community college graduates, was fairly constant over the 1977 to 1986 period. If the course's current popularity and faculty capacities hold over the 1987 to 1995 period, 600 students per year should graduate from this course. The number of new graduates competing for related employment is therefore expected to be about the same over the projection period as it was over the 1981 to 1985 period.

Destination of Graduates

Upon graduation, slightly more graduates from this field than other college fields of study entered the labour force. Although their unemployment rate was average, the majority of employed graduates had full-time jobs. Of the graduates who did not enter the labour force, about 70% pursued higher education.

Occupations

Graduates of the Other Architectural and Construction Technologies program who were working full-time two years after graduation were employed mostly as draughtspersons in the trade contracting industries. Others were working in a variety of occupations, particularly in management. Graduates seeking employment as draughtspersons face competition primarily from college graduates in architectural design/draughting, trade/vocational graduates in draughting and university graduates with a bachelor's degree in Architecture.

The Course in Retrospect

Although the labour market outcome of graduates from this field of study was about the same as for graduates from other college courses, more of these graduates had a negative attitude about their jobs. Fewer than average thought their current job matched the field of study, and more deemed that they were over-qualified for their job. Their relatively low level of job satisfaction coupled with annual salaries that were only average for this level may explain why only 60% of them, compared with 65% of all college graduates, stated they would select the same course if they had to choose again.

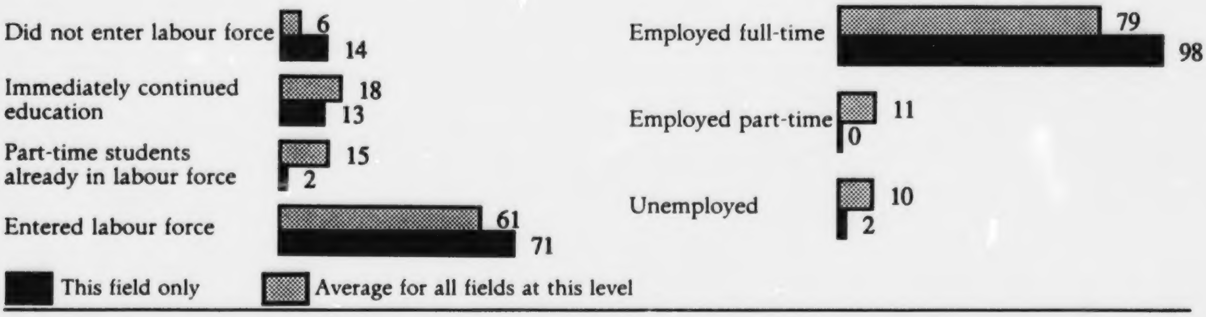
Architecture

Undergraduate
University (4 years)

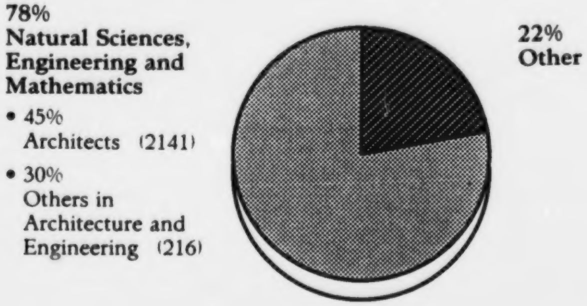
Graduate Trends and Projections

	1971	1981	1985	1986	1995
Number of Graduates	266	440	511	540	530
% of Total Undergraduate Degrees	0.4	0.4	0.5	0.5	0.5

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation



Engineering and Engineering Technologies

Architecture

Undergraduate
University (4 years)

This field of study includes programs in architecture and architectural science. Enrollment in architecture is limited, and applicants must therefore have a high-school diploma with high standings in mathematics and physics. Some institutions may also ask applicants to present a sample of their previous work (portfolio). Quebec students applying to a Quebec university must have a Diploma of Collegial Studies with emphasis on chemistry and biology, in addition to mathematics and physics. This course of study is offered in Nova Scotia, Quebec, Ontario and British Columbia. Programs take an average of four years, depending on the province and the institution. Many students enroll in a CO-OP program, where they spend part of their time in school and part working in related employment. Roughly one-third of the 1982 graduates received their qualification in this way. According to 1984 data, most students in this field were men; women represented only 25% of the graduating population in 1985.

Graduate Trends and Projections

During the 1970s, the annual number of graduates in architecture increased steadily, reaching 509 in 1980, compared with 266 in 1971. Since 1981, the annual number of graduates has increased only marginally. The relative popularity of the program has changed only slightly since 1971, when graduates in this field accounted for about 0.4% of all undergraduates. If the course's current popularity and the capacity of relevant faculties to absorb new students hold over the 1987 to 1995 period, 550 students should graduate from the course per year.

Destination of Graduates

According to 1984 data, an average proportion of Architecture graduates entered the labour force upon completion of their program. Others decided either to pursue their education or to stay out of both school and the labour force. Those who looked for a job were very successful: only 2% remained unemployed.

Occupations

As shown on the opposite page, almost half of the graduates employed full-time were working as architects two years after graduation, while others found work in related occupations in the architecture and engineering fields. Architecture graduates must compete in the labour market with holders of master's degrees in Architecture.

The Course in Retrospect

Graduates in Architecture experienced significantly better labour market conditions in 1984 than other graduates at this level. A higher-than-average proportion thought their job was related to the course of study. They were more satisfied with their job than graduates in other fields and less likely to feel over-qualified.

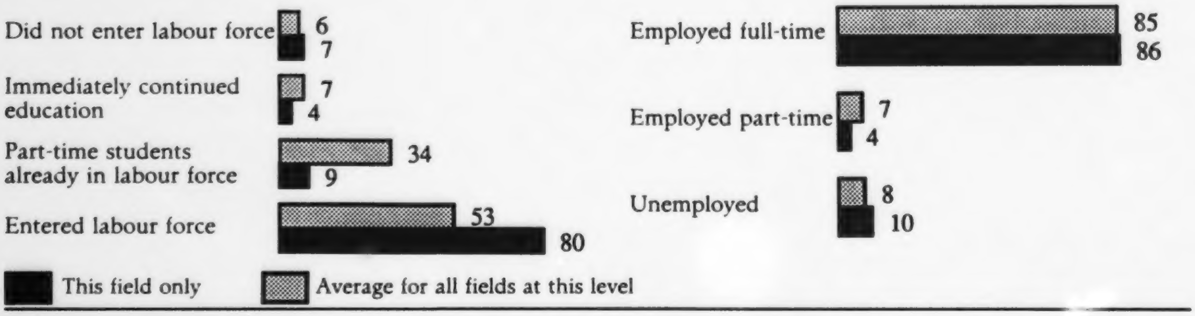
Architecture

Master's
University (4 years)

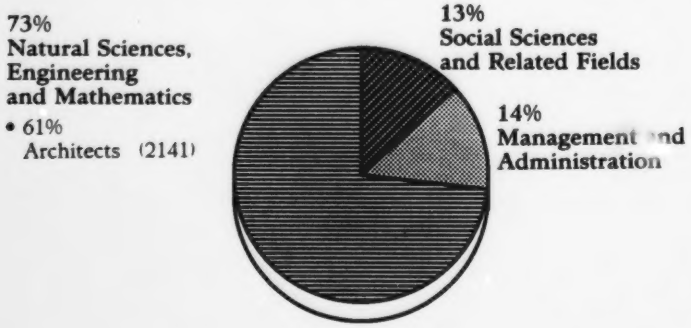
Graduate Trends and Projections

	1971	1981	1985	1986	1995
Number of Graduates	28	56	62	60	55
% of Total Master's Graduates	0.3	0.4	0.4	0.4	0.4

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation



Engineering and Engineering Technologies

Architecture

Master's
University (4 years)

At the master's level, this field of study includes programs in architecture and architectural science. The prerequisites for entrance into these programs vary by institution, but in general, candidates must have an honours undergraduate degree or the equivalent in this or a closely related field of study from a recognized university. As mentioned in the introduction, holders of graduate diplomas and certificates are included with master's graduates. The diploma or certificate programs are usually shorter than the master's program and may be taken following either an undergraduate or a master's degree. All the 1985 graduates received degrees as opposed to diplomas or certificates. Programs in this field are offered in all provinces except Newfoundland, Prince Edward Island, New Brunswick and Saskatchewan and generally take four years, depending on the institution. According to 1984 data, the majority of graduates were men (75%) and were concentrated in Manitoba (40%).

Graduate Trends and Projections

Enrollments, and therefore graduations, depend on the capacity of the specific faculty to absorb new students and on the demand for entrance. Both these factors are influenced, in part, by the current and anticipated labour market situation. Since 1981, the annual number of graduates has averaged 50. The popularity of this course, as indicated by the proportion of all master's graduates, rose marginally over the 1971 to 1981 period, but has since remained constant. If the course's current popularity and faculty capacities hold over the 1987 to 1995 period, 50 students per year should graduate from this course.

Destination of Graduates

According to the 1984 data, a much greater-than-average proportion of graduates in this course appear to have entered the labour force, largely because few graduates continued their education and few were working and attending school part-time. Their success in finding employment was slightly lower than for other master's graduates, as reflected in their 10% unemployment rate.

Occupations

Architectural master's graduates working full-time two years after graduation were employed mostly as architects in the architectural, engineering and other scientific and technical services industry. Others were working in a variety of occupations, particularly in the areas of management and administration and the social sciences. Graduates seeking employment as architects face competition primarily from undergraduates with degrees in architecture and from community college graduates with diplomas or certificates in architectural design/draughting technologies.

The Course in Retrospect

A 1984 survey indicated that although 1982 graduates in this field were less successful in the transition from school to work than other master's graduates, more thought that their current job matched the field of study and were satisfied with their job. The survey further noted that about 65% of the graduates believed they were over-qualified for the work they were presently doing, while an average proportion stated they would follow the same educational route if they had to make this choice again.

Chemical Engineering

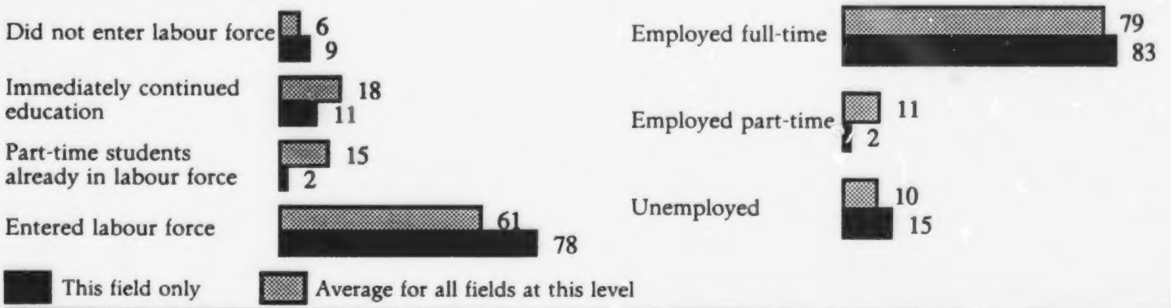
Undergraduate
University (4 years)

Engineering and Engineering Technologies

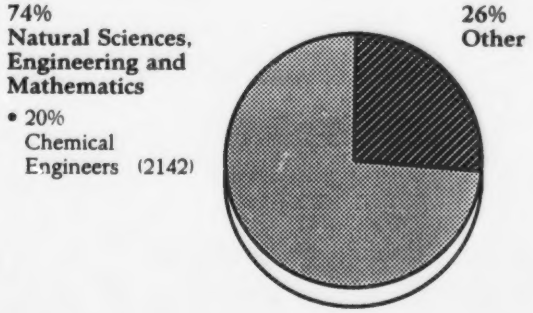
Graduate Trends and Projections

	1971	1981	1985	1986	1995
Number of Graduates	466	714	828	870	850
% of Total Undergraduate Degrees	0.6	0.7	0.7	0.7	0.7

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation



Engineering and Engineering Technologies

Chemical Engineering

Undergraduate
University (4 years)

Enrollment in this field of engineering is often limited, and competition for admittance can be fierce. Applicants must possess a high-school diploma with above-average marks in the appropriate courses, especially mathematics, physics and chemistry. (Quebec students applying to a Quebec university must have a Diploma of Collegial Studies with emphasis on these courses). All provinces except Newfoundland, Prince Edward Island and Manitoba offer an undergraduate program in Chemical Engineering. The average duration of the program is four years. Some institutions allow students to obtain their degree through involvement in a CO-OP program, where they spend part of the year in school and part in the labour force. Approximately 20% of the 1982 graduates chose this route. In 1985, women represented about 20% of the graduating population.

Graduate Trends and Projections

Between 1971 and 1985, the number of bachelor's degrees awarded in Chemical Engineering increased almost twofold. In spite of such an increase, the relative popularity of the program remained about the same over these years. If the course's current popularity and the capacities of relevant faculties to absorb new students hold over the 1987 to 1995 period, some 900 students should graduate from this course per year.

Destination of Graduates

According to 1984 data, a greater-than-average proportion of graduates in this field decided to enter the labour force upon completion of their program. They had relatively more difficulty than other graduates in finding work; 15% of the Chemical Engineering graduates at this level remained unemployed. Those who could find jobs, however, were more likely than other undergraduates to have full-time employment.

Occupations

A 1984 survey indicated that the majority of graduates who found work were employed in occupations related to the natural sciences, engineering and mathematics, especially in chemical engineering positions. Holders of master's degrees in chemical engineering as well as other engineering graduates at the undergraduate level compete with these graduates for jobs as chemical engineers.

The Course in Retrospect

Graduates of this engineering program who found full-time employment demonstrated an average level of satisfaction with their job, although they indicated a higher-than-average level of correspondence between their job and the program of study. Only a small number thought they were over-qualified for their job, which partly explains why graduates in this field were more likely than other undergraduates to state they would make the same educational choice if they had to decide again.

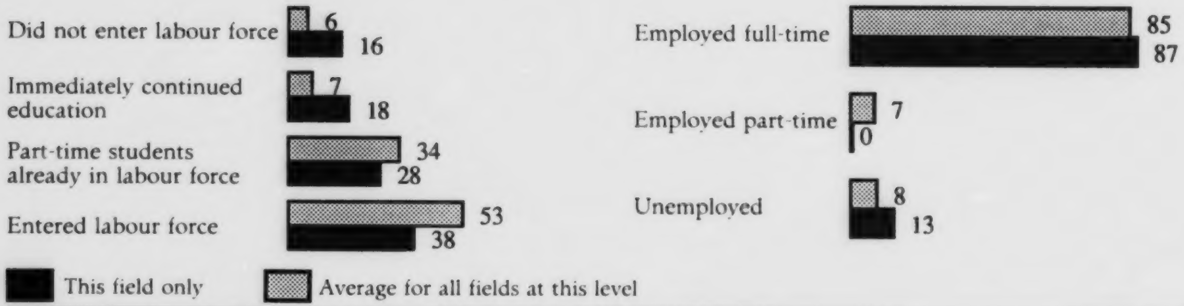
Chemical Engineering

Master's
University (2 years)

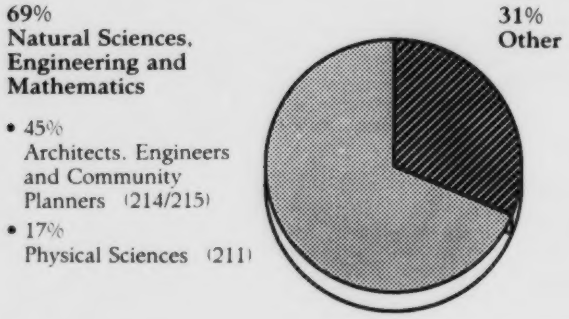
Graduate Trends and Projections

	1971	1981	1985	1986	1995
Number of Graduates	168	110	182	180	160
% of Total Master's Graduates	1.6	0.8	1.1	1.1	1.1

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation



Engineering and Engineering Technologies

Chemical Engineering

Master's
University (2 years)

At this level, Chemical Engineering includes specializations in areas such as polymer chemical engineering and pulp and paper chemical engineering. The prerequisites for entrance into this field of study vary by institution, but in general, candidates must have an honours undergraduate degree or the equivalent in this or a closely related field of study from a recognized university. As mentioned in the introduction, holders of graduate diplomas and certificates are included with master's graduates. The diploma or certificate programs are usually shorter than the master's program and may be taken following either an undergraduate or a master's degree. Almost all the 1985 graduates at this level (99%) received degrees rather than diplomas or certificates. In some institutions it is possible to graduate through involvement in a CO-OP education program, although only about 5% of the graduates in this field of study obtained their degrees in this manner, according to 1984 data. This course of study is offered in all provinces except Newfoundland, Prince Edward Island and Manitoba and generally takes two years, depending on the institution. The majority of graduates were men (80%) and were concentrated in Ontario (40%).

Graduate Trends and Projections

Enrollments, and therefore graduations, depend on the capacity of the specific faculty to absorb new students and on the demand for entrance. Both these factors are influenced, in part, by the current and anticipated labour market situation. Since 1981, the annual number of graduates has averaged 150. The popularity of this course of study, as indicated by the proportion of all master's graduates, declined over the 1971 to 1981 period, but has since begun to rebound to the 1971 level. If the course's current popularity and faculty capacities hold over the 1987 to 1995 period, about 175 students per year should graduate from this course.

Destination of Graduates

According to 1984 data, upon graduation, a far lower-than-average proportion of graduates in Chemical Engineering entered the labour force, a statistic that is largely the result of the higher-than-average numbers who continued their education or chose to enter the household sector of the economy. The success rate of graduates who sought employment was lower than for other master's graduates, as reflected by the 13% unemployment rate. No Chemical Engineering graduates were employed on a part-time basis two years after graduation.

Occupations

The majority of Chemical Engineering graduates working full-time two years after graduation were employed as engineers, although not necessarily as chemical engineers. The remainder were working in various other occupations, particularly in physical science. Graduates seeking employment as chemical engineers face competition primarily from engineering graduates at the undergraduate or PhD levels.

The Course in Retrospect

The 1984 survey indicated that not only were 1982 graduates in this field less successful in the transition from school to work than other master's graduates, but also a significantly lower-than-average proportion of them thought their current job matched the field of study. In keeping with this and reported low levels of job satisfaction, only about 70% of the graduates, compared with 80% of all master's graduates, indicated they would follow the same educational route if they had to make this choice again.

Chemical Engineering

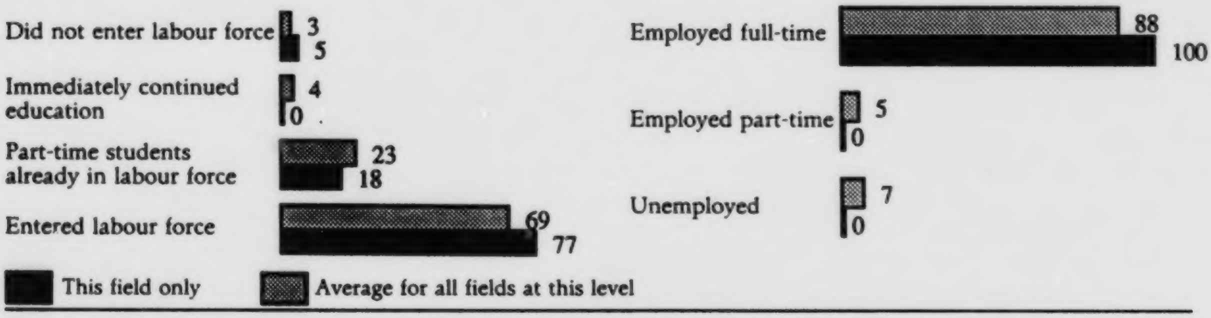
Doctorate
University (3 years)

Engineering and Engineering Technologies

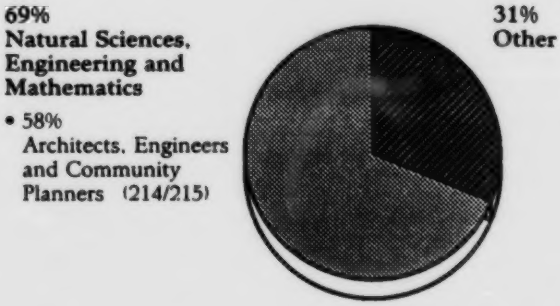
Graduate Trends and Projections

	1971	1981	1985	1986	1995
Number of Graduates	46	34	27	30	30
% of Total Doctorate Graduates	2.8	1.9	1.4	1.4	1.4

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation



Engineering and Engineering Technologies

Chemical Engineering

Doctorate
University (3 years)

At the PhD level, this field of study covers such areas of specialization as polymer chemical engineering and pulp and paper chemical engineering. In general, the program is open to candidates who possess a master's degree in Chemical Engineering or the equivalent from a recognized university. It usually lasts three years, depending on the province. All provinces except Newfoundland, Prince Edward Island and Manitoba offer this course of study. Most students are men, although the representation of women among graduates went from 0% in 1971 to 15% in 1985. Part-time study at this level is much less popular in this field than in others: according to 1984 data, only 18% of the graduates received their degree in this manner.

Graduate Trends and Projections

Between 1971 and 1985 the average annual number of graduates decreased from 40 to about 30. At the same time, the relative popularity of the program, as indicated by its share of all doctorate graduates, fell from 2.8% to 1.4%. If the current popularity of this course of study and the capacity of relevant faculties to absorb new students hold over the 1987 to 1995 period, 30 students per year should graduate from this course. The number of new graduates competing for related employment is therefore expected to remain about the same over the projection period as it was over the 1981 to 1985 period.

Destination of Graduates

According to the 1984 data, almost all graduates decided to enter the labour force upon graduation. Of these, all graduates were successful in finding full-time work. No graduates immediately continued their education.

Occupations

The majority of graduates who entered the labour force were employed in the natural sciences, engineering and mathematics, which include positions in Chemical Engineering. Further occupational detail is unavailable, owing to the diversity of the 1984 survey results.

The Course in Retrospect

Chemical Engineering graduates who were surveyed agreed that their current job corresponded to the program of study. They also reported a higher-than-average level of satisfaction with their position and were more likely than others to be employed in jobs whose educational requirements were in line with their own qualifications. However, a significantly lower-than-average proportion stated they would make the same educational choice if they had to decide again.

Chemical Engineering Technologies

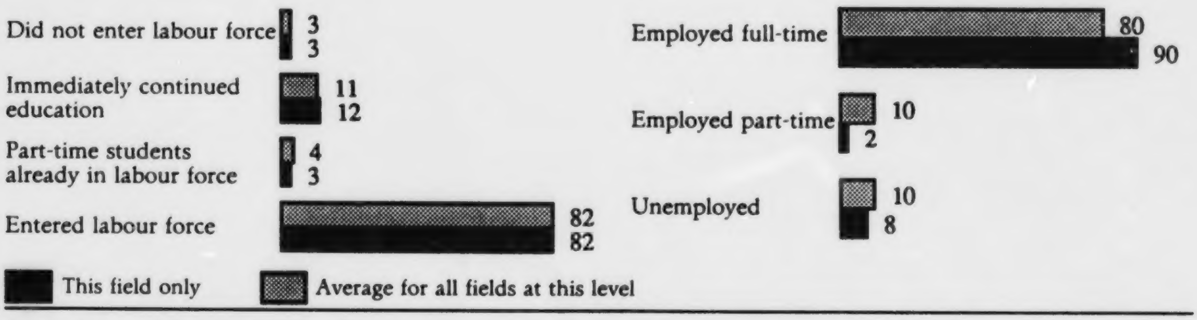
Career Program
Community College (3 years)

Engineering and Engineering Technologies

Graduate Trends and Projections

	1977	1981	1985	1986	1995
Number of Graduates	521	603	634	645	605
% of Total Community College Graduates	1.4	1.3	1.1	1.1	1.1

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation

54%
Natural Sciences, Engineering and Mathematics

- 29% Physical Sciences Technologists and Technicians (2117)
- 9% Chemists (2111)

10%
Medicine and Health

- 7% Medical Laboratory Technologists and Technicians (3156)

7%
Processing

29%
Other

Chemical Engineering Technologies

Career Program
Community College (3 years)

This field of study includes programs in chemical engineering technologies, biochemistry, industrial chemical technologies (textiles/plastics) and photographic chemical technologies. The prerequisites for entrance to this field of study vary by institution, but in general, candidates must take diagnostic tests in mathematics and chemistry and have completed senior courses in mathematics, English (French), chemistry, physics and, in some cases, biology at the high-school level. The course of study is offered in all provinces except Newfoundland and Prince Edward Island, and takes three years, depending on the institution. In some institutions, it is possible to graduate through involvement in a CO-OP program. According to 1984 data, roughly 15% of the graduates in Chemical Engineering Technologies obtained their certificate or diploma in this manner. The majority of graduates were men (60%) and were concentrated in Ontario (50%).

Graduate Trends and Projections

Enrollments, and therefore graduations, depend on the capacity of the specific faculty to absorb new students and on the demand for entrance. Both these factors are influenced, in part, by the current and anticipated labour market situation. Since 1981, the annual number of graduates has averaged 650. The popularity of this course of study, as reflected by its share of all community college graduates, declined slightly over the 1977 to 1986 period. If the course's current popularity and faculty capacities hold over the 1987 to 1995 period, 600 students should graduate from this course per year. The number of new graduates competing for related employment is therefore expected to be slightly lower over the projection period than it was over the 1981 to 1985 period.

Destination of Graduates

The 1984 survey indicated that upon graduation, an average proportion of the graduates in this field (82%) entered the labour force. A significantly greater-than-average proportion of them found full-time jobs and a slightly lower-than-average proportion were unable to find employment.

Occupations

Graduates working full-time two years after graduation were employed mostly as physical science technologists and technicians in the chemical and chemical products industries. Others were working in a variety of occupations, particularly as chemist and medical laboratory technologists and technicians. Graduates seeking employment as physical science technologists and technicians face competition primarily from university graduates with a bachelor's degree in chemistry.

The Course in Retrospect

The transition from school to work was slightly more successful for Chemical Engineering Technologies graduates than for other college graduates. This is reflected in their opinions concerning their job. An average proportion thought their current job matched the field of study, and a significantly lower-than-average number believed they were over-qualified for their present job. They were also earning slightly more than graduates in other college fields of study. Although they indicated a higher level of job satisfaction, roughly 60% of the graduates, compared with 65% of all college graduates, stated they would follow the same educational route if they had to make the choice again.

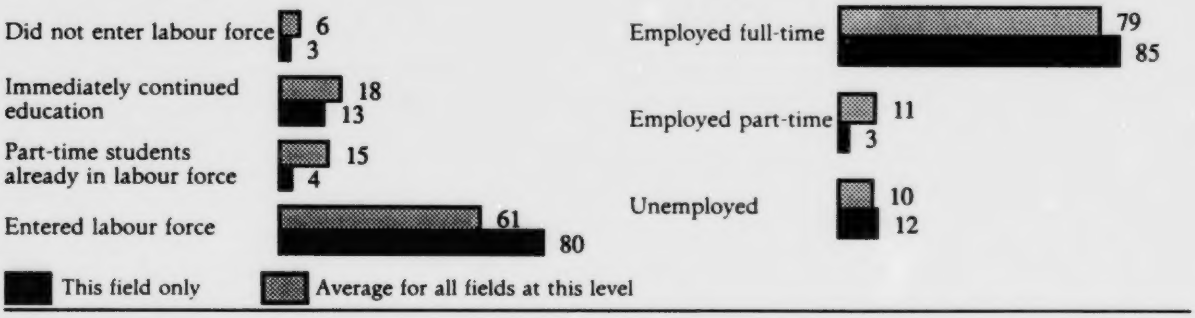
Civil Engineering

Undergraduate
University (4 years)

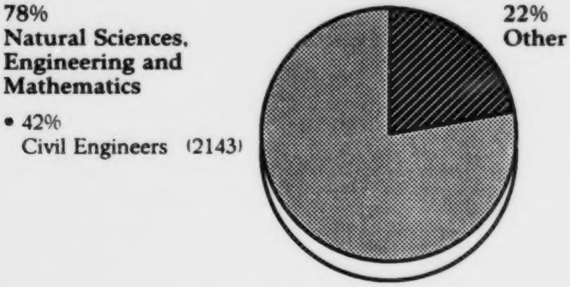
Graduate Trends and Projections

	1971	1981	1985	1986	1995
Number of Graduates	857	1,562	1,240	1,300	1,260
% of Total Undergraduate Degrees	1.2	1.6	1.1	1.1	1.1

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation



Engineering and Engineering Technologies

Civil Engineering

Undergraduate
University (4 years)

As in most other engineering programs at this level, the minimum requirement for entrance to this program is a high-school diploma with good standing in mathematics, physics and chemistry. Quebec students applying to a Quebec institution must have a Diploma of Collegial Studies with emphasis in the above-mentioned courses. The Civil Engineering program of study is offered in all provinces except Prince Edward Island and takes an average of four years. Some institutions offer the option of obtaining qualification through a CO-OP program, where the student spends part of the year in school and part in the labour force. Women accounted for about 10% of the graduates in this field in 1985.

Graduate Trends and Projections

The number of graduates in Civil Engineering increased rapidly over the 1970s but has since declined. However, on an average annual basis, more qualifications were awarded during the first half of the 1980s than during the 1970s. In recent years, an annual average of 1,340 degrees in Civil Engineering have been awarded, and this program has accounted for 1% of all undergraduate qualifications. If the current popularity of this course of study and the capacity of the relevant faculties to absorb new students hold over the 1987 to 1995 period, 1,300 students should graduate from this course per year. The number of new graduates competing for related employment is therefore expected to be slightly lower over the projection period than it was over the 1981 to 1985 period.

Destination of Graduates

According to 1984 data, a larger-than-average proportion of graduates in this program entered the labour force. A marginal number were enrolled on a part-time basis during their final semester. Those who looked for jobs had a better chance than graduates from other fields in securing full-time employment, although a slightly higher-than-average percentage remained unemployed.

Occupations

Of the graduates working full-time, most were employed in occupations related to the natural sciences, engineering and mathematics. More than 40% were working as civil engineers. Graduates working in other occupations nonetheless remained potential contenders for civil engineering positions. Since other engineering graduates as well as holders of master's degrees in Civil Engineering also reported working as civil engineers, they too are in labour market competition with undergraduates from this program.

The Course in Retrospect

Graduates from this field of study were more likely than other undergraduates to be in jobs related to their educational program and were less likely to think they were over-qualified for their current work. An average proportion were satisfied with their job, which partly explains why an above-average proportion stated they would follow the same educational route if they had to make the choice again.

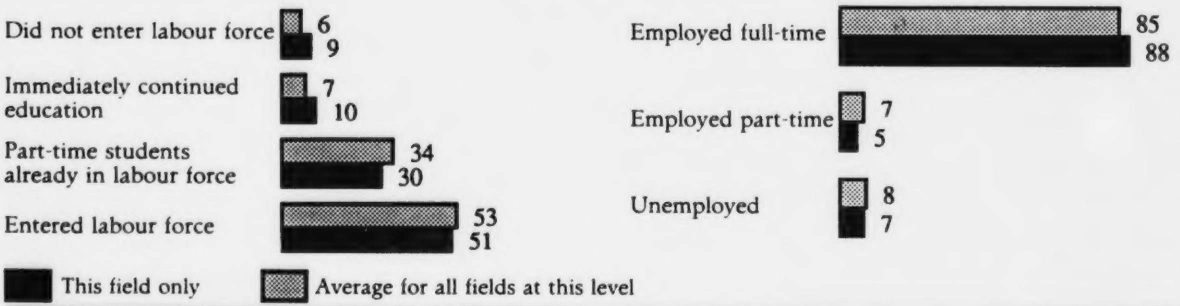
Civil Engineering

Master's
University (2 years)

Graduate Trends and Projections

	1971	1981	1985	1986	1995
Number of Graduates	305	230	360	355	320
% of Total Master's Graduates	2.9	1.6	2.2	2.2	2.2

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation

71%
Natural Sciences, Engineering and Mathematics

- 32%
  Civil Engineers (2143)
- 14%
  Engineers (2159)
- 8%
  Mechanical Engineers (2147)

13%
Management and Administration

16%
Other

Engineering and Engineering Technologies

Civil Engineering

Master's
University (2 years)

At this level, the Civil Engineering field of study includes such programs of specialization as water resource management and design of structures or drainage systems. The prerequisites for entrance into this field of study vary by institution, but in general, candidates must have an honours undergraduate degree or the equivalent in this or a closely related field of study from a recognized university. As mentioned in the introduction, holders of graduate diplomas and certificates are included with master's graduates. The diploma and certificate programs are usually shorter than the master's program and may be taken following either an undergraduate or a master's degree. Almost all the 1985 graduates in this program (95%) received degrees rather than diplomas or certificates. The course of study is offered in all provinces except Prince Edward Island, and generally takes two years, depending on the institution. In some institutions, it is possible to graduate through involvement in a CO-OP education program, although only 5% of the graduates in this field of study received their qualification in this manner, according to 1984 data. The majority of graduates were men (90%) and were equally concentrated in Quebec and Ontario (30%).

Graduate Trends and Projections

Enrollments, and therefore graduations, depend on the capacity of the specific faculty to absorb new students and on the demand for entrance. Both these factors are influenced, in part, by the current and anticipated labour market situation. Since 1981, the annual number of graduates has averaged 325. The popularity of this course, as indicated by the number of master's graduates, declined significantly over the 1971 to 1981 period, but has since begun to rise. If the course's current popularity and faculty capacities hold over the 1987 to 1995 period, 300 students should graduate from this course per year.

Destination of Graduates

Upon graduation, an average proportion of graduates in this program (51%) entered the labour force for the first time. A slightly greater-than-average proportion continued their education, and a slightly lower-than-average proportion (30%) were already in the labour force and attending school part-time. The success of Civil Engineering graduates in finding employment was about the same as for other master's graduates, although a slightly greater-than-average number were able to find full-time jobs.

Occupations

The majority of graduates working full-time two years after graduation were employed mostly as Civil Engineers in the architectural, engineering and other scientific and technical services industry. Others were working in a variety of occupations, particularly in management and administration. Graduates seeking employment as Civil Engineers face competition primarily from other engineering graduates at the university level.

The Course in Retrospect

A 1984 survey indicated that not only were 1982 graduates of this program as successful as other master's graduates in the transition from school to work, but also a significantly lower-than-average proportion thought they were over-qualified for their current job. The survey further indicated that slightly greater-than-average numbers thought their job matched their field of study and were satisfied with the job. In apparent contradiction to the above outcomes, significantly fewer of these graduates than other master's graduates indicated they would follow the same educational route if they had to make this choice again.

Civil Engineering

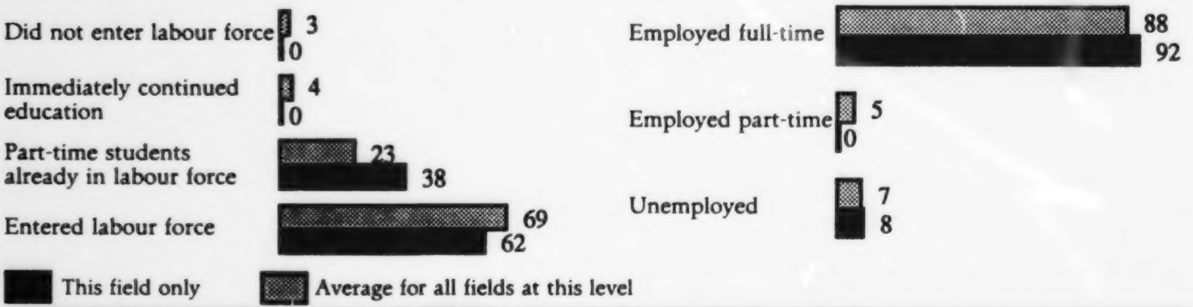
Doctorate
University (4 years)

Engineering and Engineering Technologies

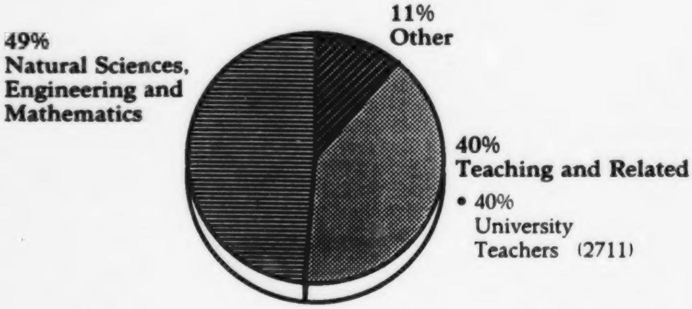
Graduate Trends and Projections

	1971	1981	1985	1986	1995
Number of Graduates	37	34	49	50	55
% of Total Doctorate Graduates	2.3	1.9	2.5	2.5	2.5

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation



Engineering and Engineering Technologies

Civil Engineering

Doctorate
University (4 years)

The program discussed here includes specializations in water resources management, design of structure and drainage engineering. The usual requirement for admission to the program is a master's degree in engineering or the equivalent. Consisting of a combination of academic courses and a research project, it is offered in all provinces except Newfoundland and Prince Edward Island, and generally takes four years, depending on the province. Some institutions offer a CO-OP program in this field of study. According to 1984 data, approximately 5% of the graduates received their degrees in this manner. As in most engineering programs, women represented only 5% of all students graduating in this field.

Graduate Trends and Projections

The number of Civil Engineering PhD graduates remained quite stable over the 1971 to 1981 period but increased slightly between 1981 and 1985. During the early 1980s, an average of 40 students graduated each year, compared with 42 during the 1970s. In terms of degrees awarded, the popularity of this program relative to other PhD programs varied slightly between 2.0% and 2.5%. If the current popularity of this course of study and the capacity of relevant faculties to absorb new students hold over the 1987 to 1995 period, about 60 students should graduate from this course per year.

Destination of Graduates

A 1984 survey indicated that all the 1982 graduates of this program entered the labour force upon graduation. This statistic results, to some extent, from the higher-than-average proportion of graduates who had already entered the labour force and who were studying part-time. However, not all graduates found full-time employment, as 8% were still looking for work two years after graduation.

Occupations

Almost half the graduates employed full-time were working in the engineering field, while another significant number had become university teachers. Civil Engineering graduates were more likely to be employed as university teachers than other engineering graduates.

The Course in Retrospect

Graduates from Civil Engineering doctoral programs were the least satisfied with their current job of all engineering graduates, although the level of satisfaction was comparable to the average for PhD graduates. Similarly, two-thirds of the graduates felt they were overqualified for their job, a proportion higher than in any other engineering field of study. On the whole, however, the graduates were positive about their program of study, as the majority stated they would take the same program if they had to make that choice again.

Civil Technologies

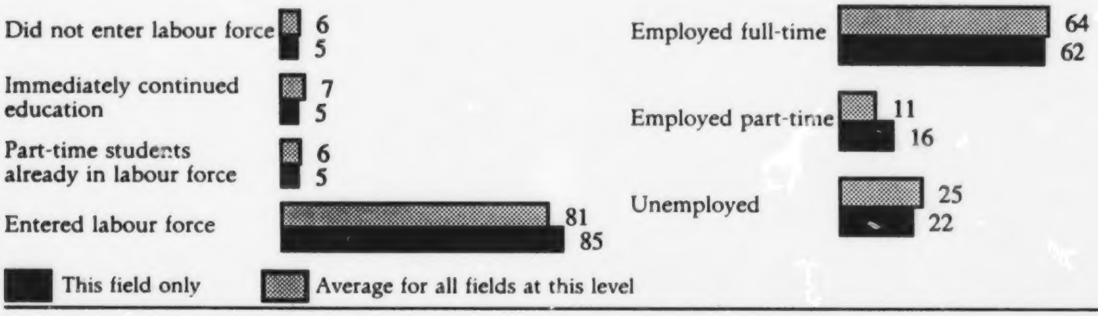
Trade/Vocational Programs
Public Trade Schools and Similar Institutions (8 months)

Graduate Trends

	1983-84*
Number of Graduates	351
% of Total Trade/Vocational Graduates	0.5

* This is the only period, since 1977, for which comprehensive and reliable data covering all provinces, territories and fields of study were available. Given this lack of historical data and the recent release of the data for 1983-84, no projections are yet available.

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation

No significant statistics could be reported.

Engineering and Engineering Technologies

Civil Technologies

Trade/Vocational Programs
Public Trade Schools and Similar Institutions (8 months)

At the trade/vocational level, this field of study consists of training programs in road construction, piping technologies and bridge construction. The qualifications required to enter such programs vary according to the type of program (pre-employment or skill upgrading), the institution and the province. However, a 1984 survey indicated that on average, graduates of these programs completed secondary school prior to enrollment. The programs usually last about eight months, and in 1983-1984, were offered by all provinces except Prince Edward Island and Nova Scotia. According to 1984 data, most graduates were men; women accounted for approximately 6% of the graduating population.

Graduate Trends and Projections

The number of successful completions reported in this course of study totalled 351 in 1983-1984, representing a very small proportion of all completions at this level. If the current popularity of this course and the capacity of relevant faculties to absorb new students hold over the 1987 to 1995 period, the average annual number of graduates should decline slightly owing to the declining size of the corresponding population age group.

Destination of Graduates

A slightly greater-than-average proportion of trade/vocational graduates in this field entered the labour force upon completion of their program. They fared relatively well in the labour market, as reflected by their slightly lower-than-average unemployment rate.

Occupations

Graduates from this course of study were working in occupations too diverse to form a significant employment pattern.

The Course in Retrospect

Although graduates experienced an average unemployment rate, only half of those working full-time had jobs related to their educational program. Furthermore, they tended to report that they were over-qualified for their current job. Contrary to graduates from other fields at this level, graduates in Civil Technologies at this level were unlikely to state they would select the same educational program if they had to make that decision again. College graduates in this field were slightly more successful in the labour market.

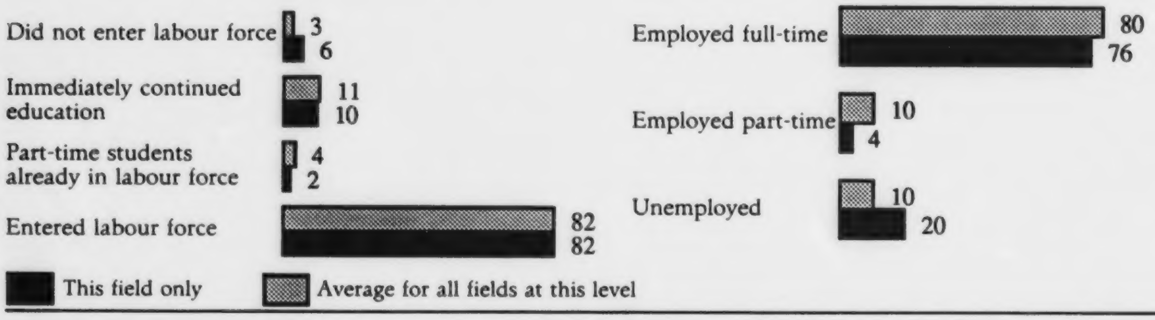
Civil Technologies

Career Program
Community College (2 years)

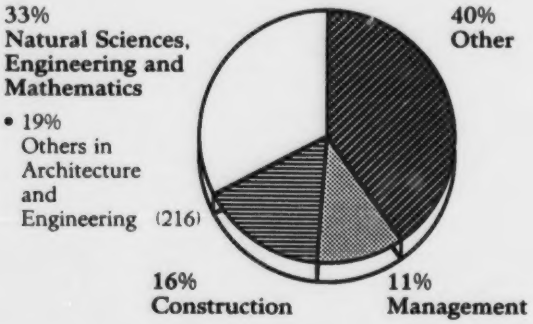
Graduate Trends and Projections

	1977	1981	1985	1986	1995
Number of Graduates	720	1,025	938	950	895
% of Total Community College Graduates	1.9	2.2	1.6	1.6	1.6

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation



Engineering and Engineering Technologies

Civil Technologies

Career Program
Community College (2 years)

At this level, Civil Technologies includes programs in civil technology (explosives), civil and structural engineering/technologies, civil engineering/technologies and municipal engineering/technologies. The prerequisites for entrance into these programs vary by institution, but in general, candidates must pass an interview, take a diagnostic mathematics test and have completed senior-level high-school courses in English (French), mathematics and physics. A draughting course is also recommended, although not compulsory. The course of study is offered in all provinces except Prince Edward Island, and usually takes two years, depending on the institution. In some institutions, it is possible to graduate through involvement in a CO-OP program, although according to 1984 data, only about 1% of Civil Technologies graduates received their certificate or diploma in this manner. The majority of graduates were men (95%) and were concentrated in Quebec (35%).

Graduate Trends and Projections

Enrollments, and therefore graduations, depend on the capacity of the specific faculty to absorb new students and on the demand for entrance. Both these factors are influenced, in part, by the current and anticipated labour market situation. Since 1981, the annual number of graduates has averaged 975. The popularity of this course of study, as indicated by its share of all community college graduates, increased slightly in the late 1970s but has been declining since 1981. If the course's current popularity and faculty capacities hold over the 1987 to 1995 period, 900 students per year should graduate from this course. The number of new graduates competing for related employment is therefore expected to be lower over the projection period than it was over the 1981 to 1985 period.

Destination of Graduates

Although upon graduation about the same proportion of graduates in this course of study as in other college courses entered the labour force, they were much less successful. Most college graduates who could not find full-time employment were able to get part-time jobs; however, this was not the case for Civil Technologies graduates. About 60% of the graduates who did not enter the labour force continued their education.

Occupations

The majority of Civil Technologies college graduates working full-time two years after graduation were employed in architecture and engineering in the architecture, engineering and other scientific and technology services industry. The remainder were working in a variety of other occupations, particularly in construction and management.

The Course in Retrospect

Civil Technologies graduates' relatively poor transition from school into the labour market is reflected in their opinions concerning the course of study and the jobs they found. A lower-than-average proportion of the graduates thought that their current job matched the field of study (70%) and a greater-than-average number (50%) thought they possessed more qualifications than their current job required. About 45% of them, compared with 65% of all college graduates, stated they would follow the same educational route if they had to choose again.

Electrical Engineering

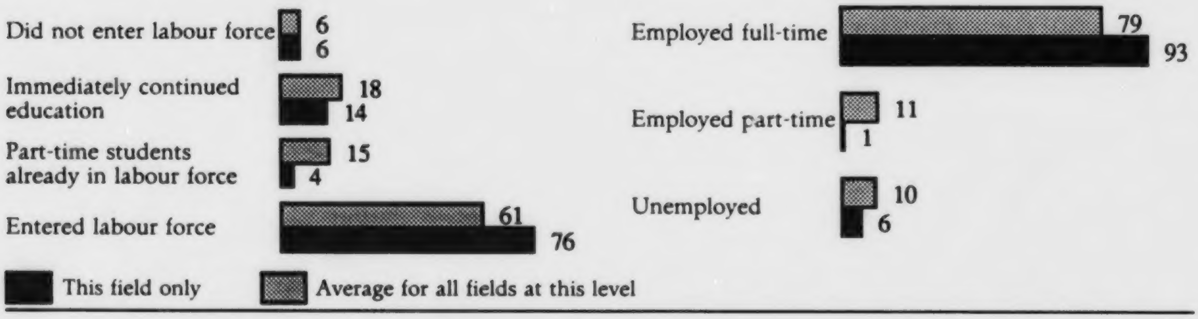
Undergraduate
University (4 years)

Engineering and Engineering Technologies

Graduate Trends and Projections

	1971	1981	1985	1986	1995
Number of Graduates	1,000	1,547	2,084	2,190	2,110
% of Total Undergraduate Degrees	1.4	1.6	1.8	1.8	1.9

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation

73%
Natural Sciences, Engineering and Mathematics

- 48%
  Electrical Engineers (2144)
- 9%
  Systems Analysts, Computer Programmers and Related (2183)

10%
Product Fabricating, Assembling and Repairing

17%
Other

Engineering and Engineering Technologies

Electrical Engineering

Undergraduate
University (4 years)

The undergraduate course in this field of study includes programs in electronics engineering as well as in Electrical Engineering. The basic requirement for entrance to these programs is a high-school diploma (or a Diploma of Collegial Studies for Quebec students applying to a Quebec university) with good standing in mathematics and science courses. Some institutions run a CO-OP program in Electrical Engineering, which combines periods of formal schooling and related work experience. Bachelor's degrees in Electrical Engineering are offered in all provinces except Prince Edward Island and usually take four years, depending on the institution. Women represented 5% of Electrical Engineering graduates in 1985.

Graduate Trends and Projections

For most of the 1970s, the annual number of graduates in this field remained relatively constant. In the past seven years however, an increasing number of bachelor's degrees have been awarded. Since 1981, an average of about 1,860 students have graduated in Electrical Engineering per year. If this course's current popularity and the capacity of relevant faculties to absorb new students hold over the 1987 to 1995 period, that number should rise to about 2,200 students.

Destination of Graduates

According to 1984 data, a smaller-than-average proportion of Electrical Engineering graduates were enrolled part-time during the final semester of their program. Upon graduation, a greater-than-average proportion decided to enter the labour force, largely because of favourable labour market conditions. About 95% of those who looked for work found full-time employment; a smaller-than-average proportion remained unemployed.

Occupations

Because of the favourable labour market conditions, most Electrical Engineering graduates were able to find jobs in engineering occupations, especially in electrical engineering, within two years after graduation. Others found work in occupations related to computers and product fabricating. Graduates in Electrical Engineering generally face job competition from university graduates with a master's degree in this field or some other bachelor's degree in engineering.

The Course in Retrospect

In keeping with the high proportion of graduates who found employment, the 1984 survey found that a greater-than-average proportion of Electrical Engineering graduates thought their current job matched the course of study and few believed they were over-qualified for their job. Almost all those surveyed were satisfied with their employment and 85%, compared with 70% of all undergraduates, stated they would select the same course of study if they had to make the choice again.

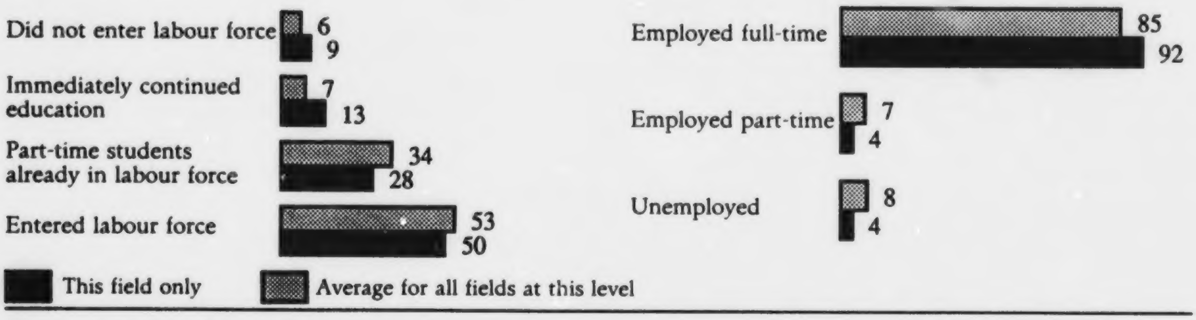
Electrical Engineering

Master's
University (2 years)

Graduate Trends and Projections

	1971	1981	1985	1986	1995
Number of Graduates	232	216	340	335	305
% of Total Master's Graduates	2.2	1.5	2.0	2.0	2.0

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation

83%
Natural Sciences, Engineering and Mathematics

- 51%
  Electrical Engineers (2144)
- 14%
  Systems Analysts and Computer Programmers (2183)
- 8%
  Others in Architecture and Engineering (216)

17%
Other

Engineering and Engineering Technologies

Electrical Engineering

Master's
University (2 years)

At the master's level, this field of study includes specializations such as electronics engineering and microwave electronics and telecommunication systems. The prerequisites for entrance into this field may vary by institution, but in general, candidates must have an honours undergraduate degree, or the equivalent, in this or a closely related field of study from a recognized university. As mentioned in the introduction, holders of graduate diplomas and certificates are included with master's graduates. The diploma and certificate programs are usually shorter than the master's program and may be taken following either an undergraduate or a master's degree. Almost all the 1985 graduates in this course of study (99%) took the degree program. The course is offered in all provinces except Prince Edward Island and generally takes two years, depending on the institution. At some universities, it is possible to graduate through involvement in a CO-OP education program, although according to 1984 data, only about 5% of the graduates in this course of study obtained their qualification in this manner. The majority of graduates were men (95%) and were equally concentrated in Quebec and Ontario (35%).

Graduate Trends and Projections

Enrollments, and therefore graduations, depend on the capacity of the specific faculty to absorb new students and on the demand for entrance. Both these factors are influenced, in part, by the current and anticipated labour market situation. Since 1981, the annual number of graduates has averaged 275. The popularity of this course, indicated by its share of all master's graduates, declined between 1971 and 1981, as was the case for most engineering disciplines; however, since that time it has begun to increase. If the course's current popularity and faculty capacities hold over the 1987 to 1995 period, 300 students should graduate from this course per year.

Destination of Graduates

Upon graduation, a slightly lower-than-average proportion of graduates entered the labour force, largely because a significantly greater-than-average proportion continued their education. The success rate of those who sought employment was not only better than for other master's graduates, but also the best for all engineering fields of study at this level.

Occupations

The majority of Electrical Engineering master's graduates working full-time two years after graduation were employed as electrical engineers in the communications and other electronic equipment industry. The remainder were working in a variety of other occupations, particularly in the area of systems analysis and computer programming. Graduates seeking employment as electrical engineers face competition primarily from other university engineering graduates.

The Course in Retrospect

The 1984 survey indicated that not only were 1982 graduates in the course of study more successful than other master's graduates in finding jobs, but also a slightly smaller-than-average proportion of them thought they were over-qualified for their current job. The survey further indicated that, in spite of the slightly lower-than-average proportion who thought their job matched the field of study, a slightly greater-than-average group were satisfied with their present job. However, a smaller-than-average proportion (75%) indicated they would follow the same educational route if they had to make this choice again.

Electrical Engineering

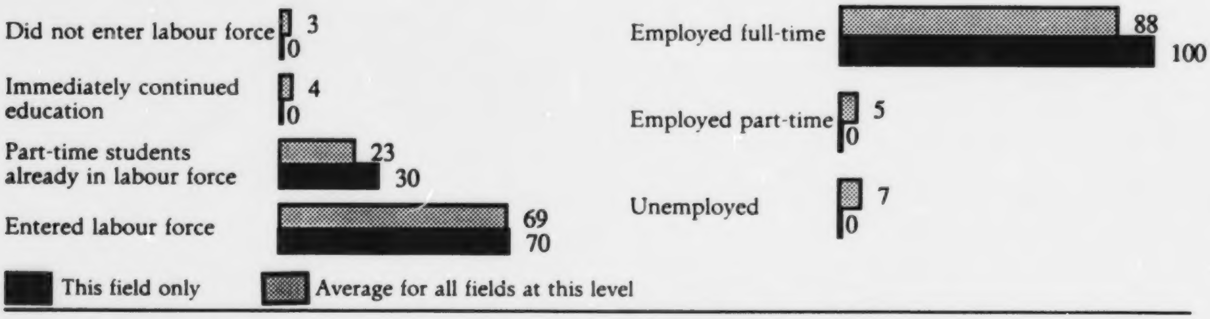
Doctorate
University (4 years)

Engineering and Engineering Technologies

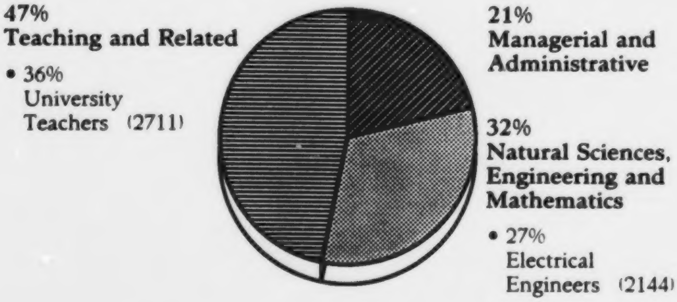
Graduate Trends and Projections

	1971	1981	1985	1986	1995
Number of Graduates	64	52	77	80	85
% of Total Doctorate Graduates	3.9	2.9	3.9	3.9	3.9

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation



Engineering and Engineering Technologies

Electrical Engineering

Doctorate
University (4 years)

The PhD course in this field of study covers areas related to Electrical Engineering, such as electronics engineering, microwave electronics and telecommunications systems. Generally, a master's degree in a related field or the equivalent is necessary to enter the program. The course of study usually takes four years, depending on the province, and is offered in all provinces except Newfoundland and Prince Edward Island. According to 1984 data, the majority of students who were enrolled in the program were concentrated in Ontario. In 1985 only 5% of the graduates were women.

Graduate Trends and Projections

Enrollments, and therefore graduations, depend on the capacity of the specific faculty to absorb new students and on the demand for entrance. Both these factors are influenced, in part, by the current and anticipated labour market situation. Since 1981, the annual number of graduates has averaged 60. As indicated by the number of graduates, the popularity of this course, as for other Engineering courses at this level, declined significantly from 1971 to 1981, but has since returned to the 1971 level. If the course's current popularity and the capacity of relevant faculties to absorb new students hold over the 1987 to 1995 period, about 90 students should graduate from this course per year.

Destination of Graduates

According to 1984 data, all the graduates from this course of study entered the labour force upon completion of their degree. This statistic is partly explained by the significantly higher-than-average proportion of students who had been enrolled on a part-time basis and were already in the labour force. All graduates found full-time jobs.

Occupations

PhD graduates in Electrical Engineering found jobs mainly in teaching, engineering and management. The majority were working as university teachers and electrical engineers.

The Course in Retrospect

In comparison with other PhD graduates, Electrical Engineering degree holders showed a greater level of satisfaction with their job and indicated a higher-than-average level of correspondence between their job and the course of study. However, they were more likely to think they were over-qualified for their current job than other graduates. Overall, about 95% of the graduates, compared with 80% of all PhD graduates, stated they would select the same educational program if they had to choose again.

Electrical/Electronic Engineering Technologies

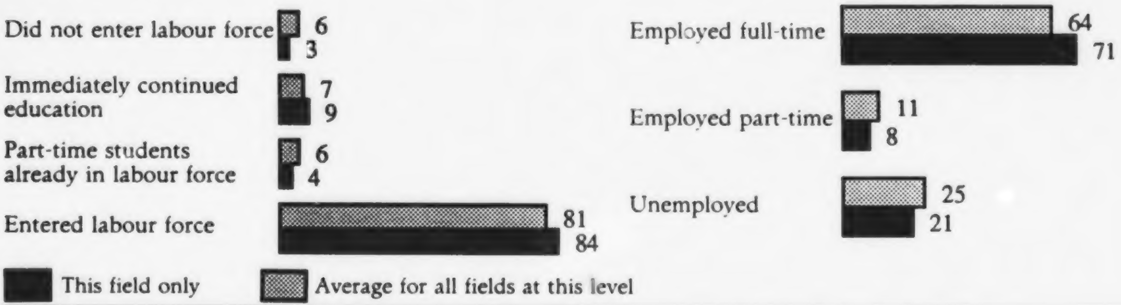
Trade/Vocational Programs
Public Trade Schools and Similar Institutions (10 months)

Graduate Trends

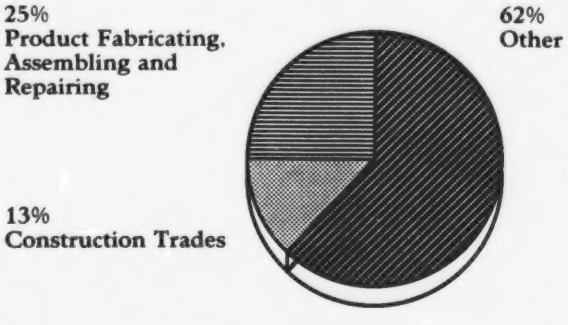
	1983-84*
Number of Graduates	2,440
% of Total Trade/Vocational Graduates	3.2

* This is the only period, since 1977, for which comprehensive and reliable data covering all provinces, territories and fields of study were available. Given this lack of historical data and the recent release of the data for 1983-84, no projections are yet available.

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation



Engineering and Engineering Technologies

Electrical/Electronic Engineering Technologies

Trade/Vocational Programs
Public Trade Schools and Similar Institutions (10 months)

This field of study includes courses related to electrical technology (air conditioning/heating, commercial electrical, electrical inspection, hydro, industrial electrical, lineman) and electronic technology (electrodynamics, electronic switching, electronic transistors, integrated circuits) as well as courses in avionics, electric motors, marine electronics, microwave and telecommunications. Although the prerequisites for entrance to these courses vary by program type (pre-employment or skill upgrading), by institution and by province, students who enrolled in this program in 1982 had, on average, completed secondary school. Training usually lasts 10 months, depending on the course of study. In 1983-1984, graduates obtained degrees in all provinces and territories except Prince Edward Island. Men accounted for about 90% of the graduating population.

Graduate Trends and Projections

The number of successful completions in this field of study makes it one of the largest at the trade/vocational level. In 1983-1984, more than 2,400 individuals graduated from the programs in this field, which represents more than 3% of all graduations at the trade level. If the current popularity of this course and the capacity of relevant faculties to absorb new students hold over the 1987 to 1995 period, the average annual number of graduates should decline slightly, owing to the declining size of the corresponding population age group.

Destination of Graduates

According to 1984 data, graduates from this field of study entered the labour force in a proportion comparable to the average for this level. In their job search, they fared slightly better than other graduates, as reflected by their lower-than-average unemployment rate and the higher-than-average number who were working full-time.

Occupations

Of the graduates working full-time two years after graduation, a significant number were employed in occupations related to product fabricating, assembling and repairing (electrical/electronic equipment). Others were employed in the construction trades (construction electricians and repairers) and in other occupations in numbers too small to be reported here.

The Course in Retrospect

Trade/vocational graduates in this field of study reported roughly the same level of satisfaction with their job as graduates from other fields. An average proportion found their job somewhat related to their training program and were less likely than others to think they were over-qualified for the job. In spite of this, a relatively lower-than-average number of graduates stated they would be ready to make the same educational choice if they had to decide again. College graduates in the same field reported better employment success in the labour market.

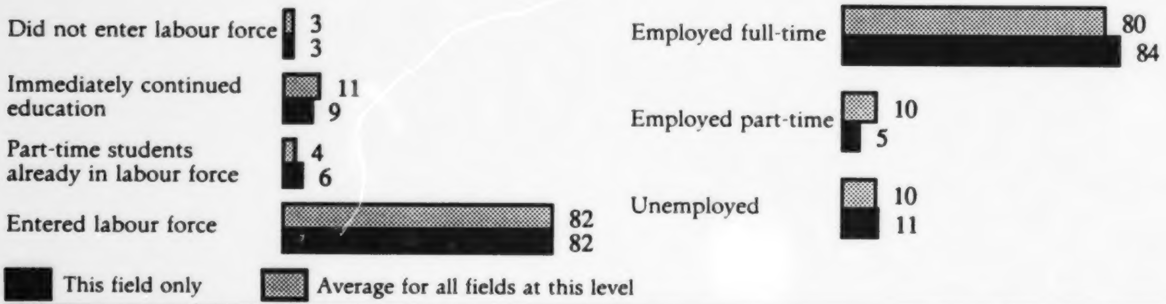
Electrical/Electronic Engineering Technologies

Career Program
Community College (2 years)

Graduate Trends and Projections

	1977	1981	1985	1986	1995
Number of Graduates	2,098	2,779	4,392	4,455	4,190
% of Total Community College Graduates	5.6	5.9	7.5	7.5	7.5

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation

33%
Product Fabricating, Assembly and Repair

- 11% Electronic and Related Equipment Installing and Repairing (8535)
- 5% Electrical and Related Equipment Installing and Repairing (8533)
- 3% Radio and Television Repairers (8537)
- 3% Business and Commercial Machine Mechanics and Repairers (8585)

29%
Natural Sciences, Engineering and Mathematics

- 19% Engineering Technologists and Technicians (2165)
- 3% Draughting (2163)

8%
Construction

- 4% Wire Communications and Related Equipment Installing and Repairing (8735)

30%
Other

Engineering and Engineering Technologies

Electrical/Electronic Engineering Technologies

Career Program
Community College (2 years)

At the community college level, this field of study includes programs in such areas as air conditioning and heating, refrigeration, industrial electrician work, hydro, electrical construction, electronic switching, electronic transistors, circuitry, avionics, marine and telecommunications. The prerequisites for entrance into the field vary by institution, but in general, candidates must pass an interview, take a diagnostic mathematics test and have completed senior high-school courses in English (French), mathematics, physics or chemistry, and draughting. Related experience is considered an asset. The course of study is offered in all provinces and usually takes two years, depending on the institution. At some colleges, it is possible to graduate through involvement in a CO-OP program. According to 1984 data, roughly 10% of the graduates in Electrical/Electronic Engineering Technologies received their certificate or diploma in this manner. The majority of these graduates were men (95%) and were concentrated in Quebec (45%).

Graduate Trends and Projections

Enrollments, and therefore graduations, depend on the capacity of the specific faculty to absorb new students and on the demand for entrance. Both these factors are influenced, in part, by the current and anticipated labour market situation. Since 1981, the annual number of graduates has averaged 3,575. The popularity of this course, as indicated by its share of all community college graduates, has grown consistently since 1977. If the course's current popularity and faculty capacities hold over the 1987 to 1995 period, 4,200 students should graduate from this course per year.

Destination of Graduates

As many graduates in this field of study (82%) as in other college courses entered the labour force after graduation. Similarly, the unemployment rate of these graduates was about the same as the average for all college fields of study (10%). A slightly larger proportion of Electrical/Electronic graduates than other graduates were employed full-time. About 10% of graduates in this field decided to continue their education.

Occupations

The majority of Electrical/Electronic Technologies college graduates working full-time two years after graduation were employed as electrical/electronic equipment installers and repairers and engineering technologists and technicians in the communications and other electronic equipment and electrical/electronic equipment and supplies (wholesale) industries. The remainder were working in a variety of other occupations, particularly in product fabricating, assembly and repair and engineering. Graduates seeking employment as engineering technologists and technicians face competition primarily from trade/vocational graduates in electrical/electronic technologies and from university graduates with a bachelor's degree in electrical engineering.

The Course in Retrospect

The transition from school to work was as successful for these graduates as for most other college graduates. This is reflected in the fact that a significantly lower-than-average proportion (30%) thought they were over-qualified for their current job and an average proportion (90%) were satisfied with their job. In keeping with average unemployment and job satisfaction, as well as slightly higher-than-average annual salaries, 65% of the graduates stated they would select the same course if they had to choose again.

Industrial Engineering Technologies

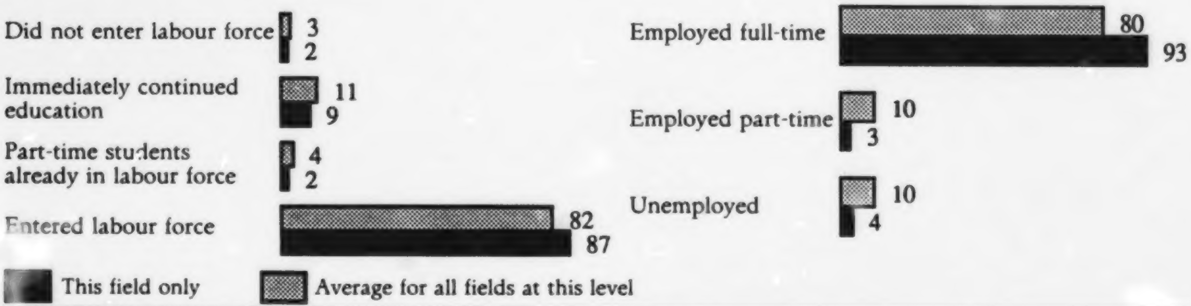
Career Program
Community College (2 years)

Engineering and Engineering Technologies

Graduate Trends and Projections

	1977	1981	1985	1986	1995
Number of Graduates	389	672	918	930	875
% of Total Community College Graduates	1.0	1.4	1.6	1.6	1.6

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation

24% Machining and Related

- 9% Machinists and Machine Tool Set-Up (8313)
- 8% Tool and Die Makers (8311)

17% Product Fabricating, Assembly and Repair

11% Processing

10% Natural Science, Engineering and Mathematics

38% Other

Industrial Engineering Technologies

Career Program
Community College (2 years)

This field of study includes programs in industrial design/operation, manufacturing technologies (automobile, electrical/electronic, wood and paper products, aircraft, clothing, chemical), quality control, machinist work and material science and management. The prerequisites for entrance into the field vary by institution, but in general, candidates must pass an interview, take a diagnostic mathematics test and have completed senior high-school courses in English (French), mathematics, physics and chemistry. Although not compulsory, courses in computer programming, machine shop, mechanical draughting and welding are recommended. The course is offered in all provinces and generally takes two years, depending on the institution. At some colleges it is possible to graduate through involvement in a CO-OP program. According to 1984 data, roughly 15% of the graduates in this field received their certificate or diploma in this manner. The majority of graduates were men (90%) and were concentrated in Quebec (48%).

Graduate Trends and Projections

Enrollments, and therefore graduations, depend on the capacity of the specific faculty to absorb new students and on the demand for entrance. Both these factors are influenced, in part, by the current and anticipated labour market situation. Since 1981, the annual number of graduates has averaged 800. The popularity of this course, as indicated by its share of all community college graduates, increased slowly but consistently between 1977 and 1986. If the course's current popularity and faculty capacities hold over the 1987 to 1995 period, about 900 students should graduate from this course per year.

Destination of Graduates

Upon graduation, a slightly greater-than-average proportion of graduates in this field entered the labour force. A significantly greater-than-average proportion found employment, and most found full-time jobs.

Occupations

The majority of college graduates in Industrial Engineering Technologies working full-time two years after graduation were employed as machinists, machine tool set-up workers and tool and die makers in the hardware, tool and cutlery industry. The remainder were working in a variety of other occupations, particularly in product fabricating, assembly and repair, processing and engineering. Graduates seeking employment as machinists face competition primarily from trade/vocational graduates of similar courses.

The Course in Retrospect

In spite of their relative success in finding employment, a lower-than-average proportion of graduates in this field thought their present job matched their field of study. A greater-than-average proportion believed they were over-qualified for their job. Only about 60%, compared with 65% of all college graduates, stated they would select the same course if they had to choose again.

Industrial Engineering Technologies (Machinist)

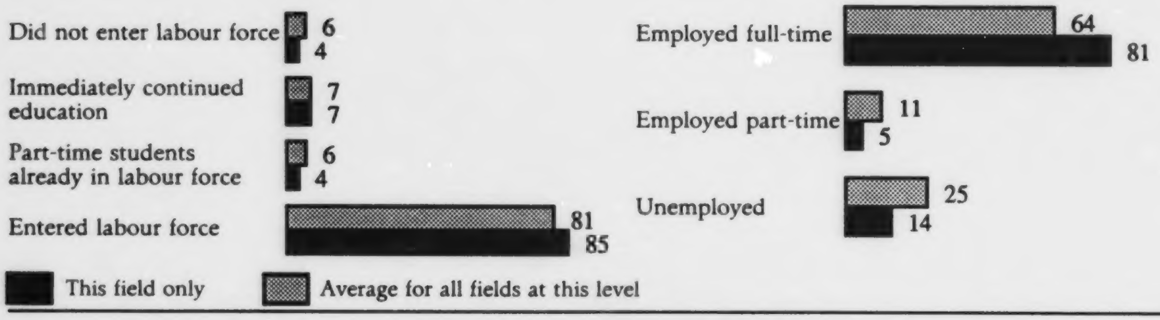
Trade/Vocational Programs
Public Trade Schools and Similar Institutions (12 months)

Graduate Trends

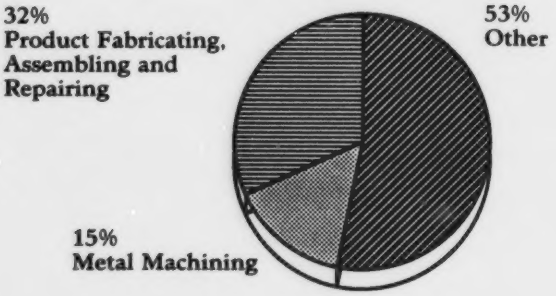
	1983-84*
Number of Graduates	2.538
% of Total Trade/Vocational Graduates	3.4

* This is the only period, since 1977, for which comprehensive and reliable data covering all provinces, territories and fields of study were available. Given this lack of historical data and the recent release of the data for 1983-84, no projections are yet available.

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation



Engineering and Engineering Technologies

Industrial Engineering Technologies (Machinist)

Trade/Vocational Programs
Public Trade Schools and Similar Institutions (12 months)

The Machinist field of study covers training programs in bearing manufacturing, engraving, gear cutting, machine shop and tool and die making. The minimum entrance requirement varies according to the type of program (pre-employment or skill-upgrading), the institution and the province, although 1982 graduates all had completed high school before enrolling in the program. All provinces except Prince Edward Island offer programs in this field of study. Training generally lasts 12 months, depending on the type of program. According to 1984 data, the average age of graduates was 25. Women accounted for less than 10% of the graduating population.

Graduate Trends and Projections

More than 2,500 people graduated in this field in 1983-1984, representing more than 3% of all graduations reported for the pre-employment and skill upgrading programs. If the current popularity of this course and the capacity of the faculty to absorb new students hold over the 1987 to 1995 period, the average annual number of graduates should decline slightly as a result of the declining size of the corresponding population age group.

Destination of Graduates

Although graduates from this training program entered the labour force in a proportion comparable to the average for this level, they faced better labour market conditions. A smaller-than-average proportion could not find work, and about 80% of those in the labour force were employed full-time.

Occupations

Of the graduates working full-time two years after graduation, most were working in product fabricating, assembling, repairing and metal machining. Others were scattered across various occupations but in numbers too small to be reported here.

The Course in Retrospect

Despite the favourable labour market conditions faced by these graduates (reflected in their low unemployment rate), they did not seem to enjoy their job as much as other graduates at the trade/vocational level. A significantly lower-than-average proportion found a job that matched their training program and were more likely than other trade-level graduates to feel over-qualified for their job. Consistent with these statistics, a lower-than-average proportion stated that they were satisfied with their present job.

Industrial Engineering Technologies (Manufacturing)

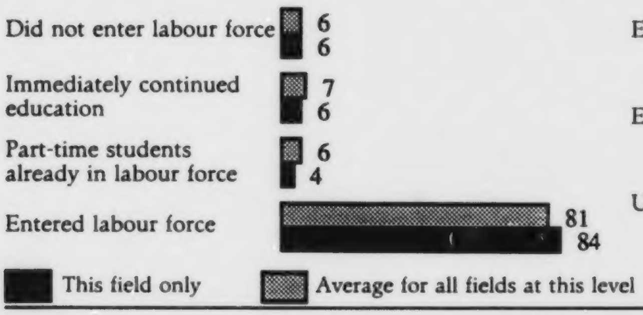
Trade/Vocational Programs
Public Trade Schools and Similar Institutions (6 months)

Graduate Trends

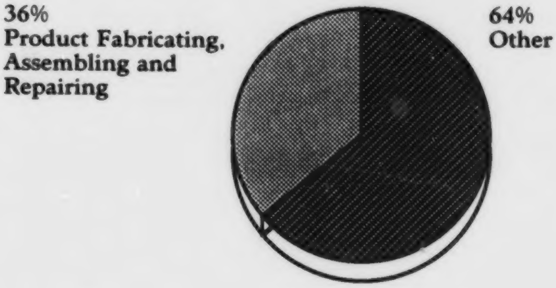
	1983-84*
Number of Graduates	1,873
% of Total Trade/Vocational Graduates	2.5

* This is the only period, since 1977, for which comprehensive and reliable data covering all provinces, territories and fields of study were available. Given this lack of historical data and the recent release of the data for 1983-84, no projections are yet available.

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation



Engineering and Engineering Technologies

Industrial Engineering Technologies (Manufacturing)

Trade/Vocational Programs
Public Trade Schools and Similar Institutions (6 months)

This field of study includes all training programs in manufacturing technologies related to electrical/electronic equipment, metal, wood and paper products, aircraft, clothing, rubber, glass, plastics and chemicals. The entrance qualifications vary according to the type of program (pre-employment or skill-upgrading), the institution and the province; however, a 1984 survey indicated that those who completed the course, on average, had had a high-school diploma before enrolling in the program. All provinces except Prince Edward Island offered these programs in 1983-1984. The average duration of the course was six months, depending on the type of program. The representation of women in this field of study was below the average for this level. They accounted for approximately 30% of the graduates.

Graduate Trends and Projections

For the 1983-1984 period, close to 1,900 successful completions were recorded in this field of study, which represents more than 2% of all completions registered for that period. If the current popularity of this course and the capacity of the faculty to absorb new students hold over the 1987 to 1995 period, the average annual number of graduates should decline slightly as a result of the declining size of the corresponding population age group.

Destination of Graduates

The destinations of these graduates are typical for this level. An average proportion of graduates entered the labour force. The unemployment rate for graduates in this field was 23%, compared with an average of 25% for this level.

Occupations

Two years after graduation, those who were employed full-time were mostly in product fabricating, assembling and repairing occupations. Others found jobs in a variety of occupations in numbers too small to be reported.

The Course in Retrospect

Although graduates of this course of study experienced an average unemployment rate, they were more likely than other graduates to find jobs unrelated to their training program. This may partly explain why a larger-than-average proportion believed they were overqualified for their current job. Despite these unfavourable indicators, the majority stated that they were satisfied with their job. About 70%, compared with 60% of all trade/vocational graduates, said they would take the same program if they had to make the decision again.

Mechanical Engineering

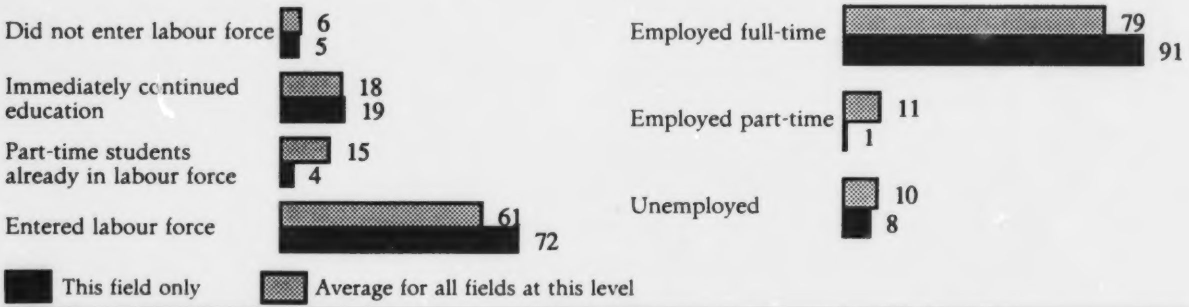
Undergraduate
University (4 years)

Engineering and Engineering Technologies

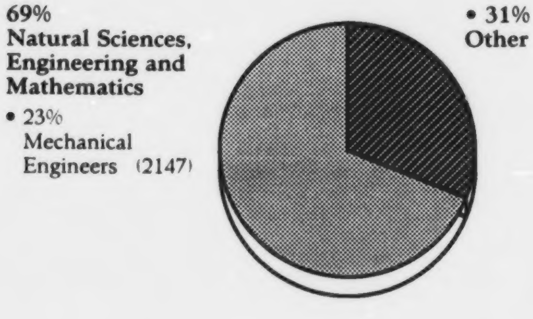
Graduate Trends and Projections

	1971	1981	1985	1986	1995
Number of Graduates	892	1,460	1,973	2,080	2,010
% of Total Undergraduate Degrees	1.2	1.5	1.7	1.7	1.8

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation



Mechanical Engineering

Undergraduate
University (4 years)

Students applying for entrance to the Mechanical Engineering field of study must have completed a high-school diploma with good standing in courses such as physics, mathematics and chemistry. (Quebec students applying to a Quebec institution must have a Diploma of Collegial Studies covering similar subjects). The program usually takes four years, although this varies according to the province and institution. Some institutions offer the possibility of obtaining a degree through involvement in a CO-OP program, where students spend part of the time in school and part in related working situations. All provinces except Prince Edward Island offer an undergraduate program in Mechanical Engineering. In 1985, 5% of the graduates were women.

Graduate Trends and Projections

The number of Mechanical Engineering graduates has increased steadily since 1971, along with the program's popularity. Between 1971 and 1985, the graduating population in this field more than doubled. In recent years, an average of 1,800 students have graduated in Mechanical Engineering per year, representing 1.7% of all undergraduate qualifications awarded. If the current popularity of this course and the capacity of the faculty to absorb new students hold over the 1987 to 1995 period, about 2,100 students should graduate from this course per year.

Destination of Graduates

According to 1984 data, an average proportion of graduates in this field pursued further training after completion of their program. Almost all the other graduates chose to enter the labour force and were successful in their job search. They experienced a slightly less severe unemployment situation than other graduates and were more likely to find full-time jobs.

Occupations

Two years after graduation, graduates working full-time were employed predominantly in occupations related to engineering. Approximately 25% reported working as Mechanical Engineers. Graduates at this level face job competition from university graduates in related engineering fields, such as civil engineering, and from holders of master's degrees in Mechanical Engineering.

The Course in Retrospect

In general, Mechanical Engineering graduates were more satisfied with their course of study than other graduates at this level. A greater-than-average proportion of them stated they would follow the same educational route if they had to make the choice again, and a significantly smaller-than-average number thought they were over-qualified for their current job.

Mechanical Engineering

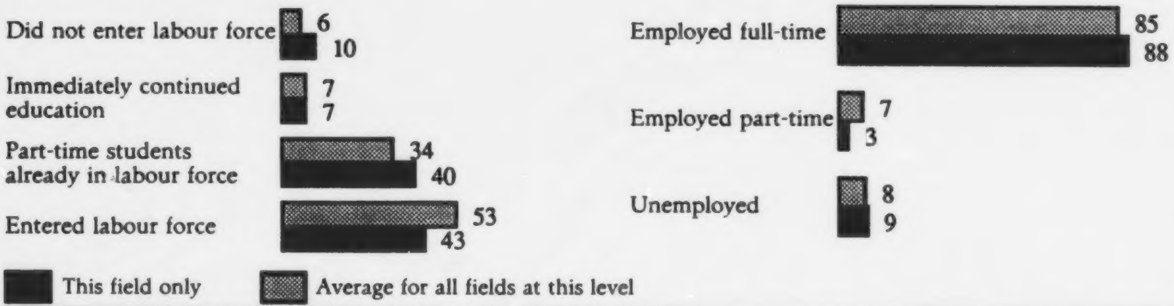
Master's
University (2 years)

Engineering and Engineering Technologies

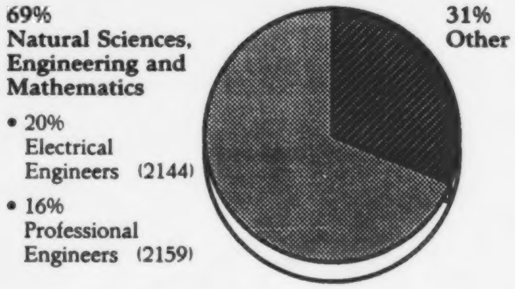
Graduate Trends and Projections

	1971	1981	1985	1986	1995
Number of Graduates	185	116	261	255	235
% of Total Master's Graduates	1.8	0.8	1.6	1.6	1.6

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation



Engineering and Engineering Technologies

Mechanical Engineering

Master's
University (2 years)

At the master's level, this field of study includes specialization in areas such as machinery processes, mechanics of solids and aerodynamics. The prerequisites for entrance vary by institution, but in general, candidates must have an honours undergraduate degree or the equivalent in this or a closely related field of study from a recognized university. As mentioned in the introduction, holders of graduate diplomas and certificates are included with master's graduates. The diploma and certificate programs are usually shorter than the master's program and may be taken following either an undergraduate or a master's degree. Almost all the 1985 graduates received degrees as opposed to diplomas or certificates. The course of study is offered in all provinces except Prince Edward Island and generally takes two years, depending on the institution. At some universities, it is possible to graduate through involvement in a CO-OP program, although only a small percentage of graduates in this program received their degrees in this manner, according to 1984 data. The majority of graduates were men (95%) and were concentrated in Quebec (35%).

Graduate Trends and Projections

Enrollments, and therefore graduations, depend on the capacity of the specific faculty to absorb new students and on the demand for entrance. Both these factors are influenced, in part, by the current and anticipated labour market situation. Since 1981, the annual number of graduates has averaged 200. As indicated by the proportion of graduates, the popularity of this course (as well as of other engineering disciplines) declined between 1971 and 1981, but has since begun to rise. If the current popularity of this course and the capacity of the relevant faculties hold over the 1987 to 1995 period, 200 students should graduate from this course per year. The number of new graduates competing for related employment is therefore expected to remain about the same over the projection period as it was over the 1981 to 1985 period.

Destination of Graduates

Upon graduation, a significantly smaller-than-average proportion of graduates in this program entered the labour force for the first time. If graduates who were attending school and working part-time are included with the first-time entrants, the number of graduates entering the labour force rises. Graduates in this field were about as successful as other master's graduates in finding employment, although more Mechanical Engineering graduates found full-time jobs.

Occupations

The majority of Mechanical Engineering master's graduates working full-time two years after graduation were employed in engineering, but mostly as electrical engineers, which indicates the versatility of engineering disciplines. The remainder were scattered across various other occupations but were not concentrated in any one. Graduates looking for jobs in their field face competition primarily from other engineering graduates at the university level.

The Course in Retrospect

A 1984 survey indicated that while 1982 graduates in this program were as successful as other master's graduates in finding employment, and a significantly lower-than-average proportion thought they were over-qualified for their current job, a greater-than-average proportion were nonetheless dissatisfied. Only about 70%, compared with 80% of all master's graduates, indicated that they would follow the same educational route if they had to make this choice again.

Mechanical Engineering

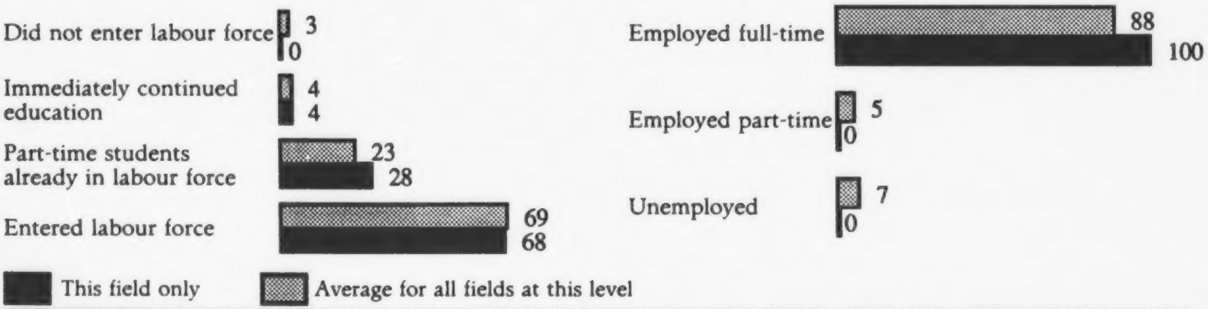
Doctorate
University (4 years)

Engineering and Engineering Technologies

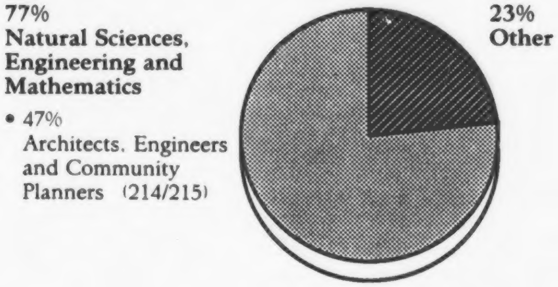
Graduate Trends and Projections

	1971	1981	1985	1986	1995
Number of Graduates	42	27	46	50	50
% of Total Doctorate Graduates	2.6	1.5	2.3	2.3	2.3

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation



Mechanical Engineering

Doctorate
University (4 years)

The PhD program in the Mechanical Engineering field of study includes such areas of specialization as machinery processes, mechanics of solids and aerodynamics. Usually, students applying for entrance are required to have a master's degree or the equivalent in a related field. In some cases, applicants with an honours bachelor's degree who satisfy the course requirements for the master's degree are allowed to enter the program. Some institutions offer the possibility of completing the doctorate through a CO-OP program. According to 1984 data, approximately 10% of the graduates obtained their degree in this manner. The PhD program takes an average of four years and is offered in all provinces except Newfoundland and Prince Edward Island. As in other engineering fields, most students are men. Only about 5% of the 1985 graduating class were women.

Graduate Trends and Projections

During the 1970s, the number of graduates as well as the relative popularity of this field of study fluctuated slightly. In 1971, 42 students graduated, whereas in 1981, only 27 did so. This trend reversed in the early 1980s: 46 PhD degrees were awarded in 1985. If the current popularity of this course and the capacity of the relevant faculties to absorb new students hold over the 1987 to 1995 period, 50 students should graduate from this course per year.

Destination of Graduates

According to the 1984 data, a marginal number of graduates decided to pursue their education after completing their doctorate degree. The remaining graduates entered the labour force with great success; they all found full-time jobs within two years after graduation. Part of their success may be attributable to the fact that a significant proportion had been enrolled in a PhD program on a part-time basis and probably already had jobs.

Occupations

More than three-quarters of the graduates from this field of study were concentrated in occupations related to engineering. The remainder were working in a variety of other occupations but were not concentrated in any one.

The Course in Retrospect

As was reported in most other engineering fields, graduates in Mechanical Engineering were all satisfied with their jobs, which they found corresponded to their educational program. In spite of this, a significantly higher-than-average number considered themselves overqualified for their jobs. The majority of Mechanical Engineering graduates (90%), compared with 80% of all PhD graduates, stated they would take the same course of study if they had to make that choice again.

Mechanical Technologies

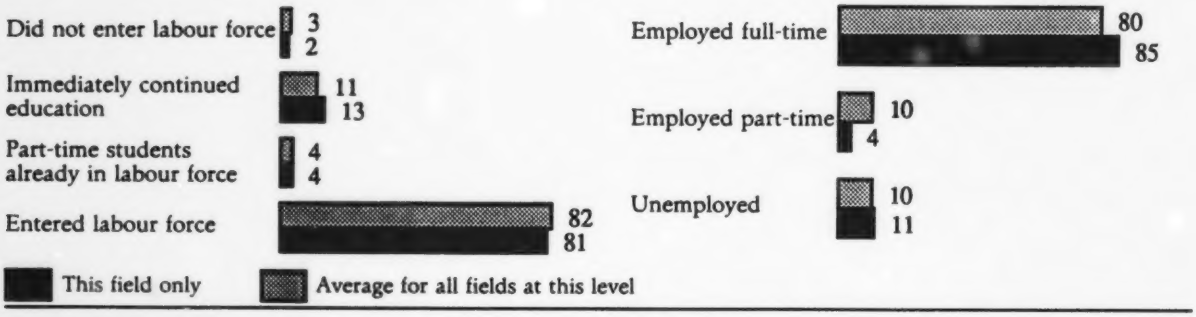
Career Program
Community College (2 years)

Engineering and Engineering Technologies

Graduate Trends and Projections

	1977	1981	1985	1986	1995
Number of Graduates	865	1,357	1,620	1,645	1,545
% of Total Community College Graduates	2.3	2.9	2.8	2.8	2.8

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation

29%
Product Fabricating, Assembly and Repair

- 9%
  Motor Vehicle Mechanics and Repairers (8581)
- 7%
  Industrial, Farm and Construction Machinery Mechanics and Repairers (8584)

18%
Natural Sciences, Engineering and Mathematics

- 4%
  Draughting (2163)
- 4%
  Engineering Technologists and Technicians (2165)

7%
Transport Equipment Operating

- 4%
  Engineering Officers — Ship (9153)
- 3%
  Motor Transport Operators (917)

46%
Other

Engineering and Engineering Technologies

Mechanical Technologies

Career Program
Community College (2 years)

This field of study includes programs leading to occupations such as agriculture equipment mechanic, aircraft mechanic, auto mechanics, auto body repairer, marine mechanic and heavy (small) equipment mechanic. The prerequisites for entrance vary by institution, but in general, candidates must have a good mechanical aptitude, pass an interview, take a diagnostic mathematics test and have completed senior high-school courses in English (French), mathematics and physics. Although they are not compulsory, courses in chemistry, mechanical draughting, machine shop and welding are recommended. The course of study is offered in all provinces and generally takes two years, depending on the institution. At some colleges, it is possible to graduate through involvement in a CO-OP program. According to 1984 data, roughly 15% of Mechanical Technologies graduates received their certificate or diploma in this manner. Almost all graduates are men (99%) and are concentrated in Ontario (50%).

Graduate Trends and Projections

Enrollments, and therefore graduations, depend on the capacity of the specific faculty to absorb new students and on the demand for entrance. Both these factors are influenced, in part, by the current and anticipated labour market situation. Since 1981, the annual number of graduates has averaged 1,550. The popularity of this course, as indicated by its share of all community college graduates, rose between 1977 and 1981 but has held fairly constant since then. If the current popularity of this course and faculty capacities hold over the 1987 to 1995 period, 1,500 students should graduate from this course per year. The number of new graduates competing for related employment is therefore expected to remain about the same over the projection period as it was over the 1981 to 1985 period.

Destination of Graduates

The same proportion of graduates from this field as in other college fields of study (82%) entered the labour force after graduation. About 15% continued their education. The unemployment rate for these graduates was about the same as the average for all college fields of study (10%), but a slightly higher proportion of Mechanical Technologies graduates were employed on a full-time basis.

Occupations

The majority of graduates working full-time two years after graduation were employed as motor vehicle mechanics and repairers and as industrial, farm and construction machinery mechanics and repairers in the motor vehicle industry. The remainder were working in a variety of other occupations, particularly in product fabricating, assembly and repair, engineering and transport equipment operating. Graduates seeking employment as motor vehicle mechanics face competition primarily from trade/vocational graduates from similar fields of study (auto mechanics, auto body repair, heavy equipment mechanics).

The Course in Retrospect

An average proportion of Mechanical Technologies graduates were satisfied with their current job. However, a smaller-than-average proportion thought that this job matched their field of study, and a significantly greater-than-average proportion considered themselves over-qualified for their job. About 60% of the graduates, compared with 65% of all college graduates, stated they would follow the same educational route if they had to make that choice again.

Auto Body Repairs

Trade/Vocational Programs
Public Trade Schools and Similar Institutions (12 months)

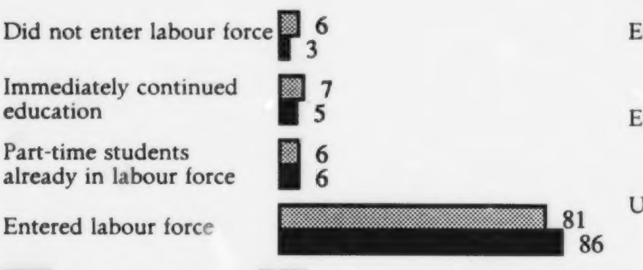
Engineering and Engineering Technologies

Graduate Trends

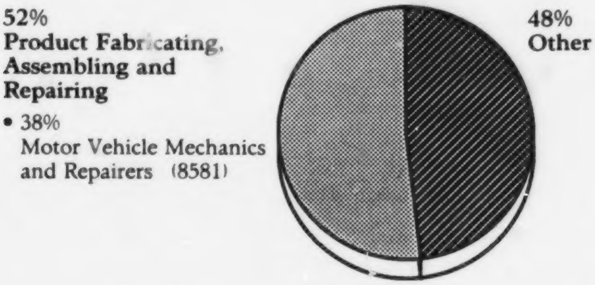
	1983-84*
Number of Graduates	501
% of Total Trade/Vocational Graduates	0.7

* This is the only period, since 1977, for which comprehensive and reliable data covering all provinces, territories and fields of study were available. Given this lack of historical data and the recent release of the data for 1983-84, no projections are yet available.

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation



Auto Body Repairs

Trade/Vocational Programs
Public Trade Schools and Similar Institutions (12 months)

This field of study is unique: it does not cover other related training programs. The minimum requirements for admittance to the program vary according to the type of program (pre-employment or skill upgrading), the institution and the province, although a 1984 survey indicated that on average, graduates had completed a high-school diploma prior to enrolling in the program. The course generally lasts one year, and in 1983-1984 it was offered in all provinces except Prince Edward Island and Quebec. The graduates surveyed in 1984 were younger at graduation than the average for this level, and most were men. Women represented only about 2% of the graduates.

Graduate Trends and Projections

In 1983-1984, approximately 500 successful completions were reported for this training program. This number represents less than 1% of all completions at this level registered for that period. If the current popularity of this course and the capacity of the relevant faculties to absorb new students hold over the 1987 to 1995 period, the average annual number of graduates should decline slightly, owing to the declining size of the corresponding population age group.

Destination of Graduates

Upon completion of their program, a greater-than-average proportion of graduates chose to enter the labour force. However, those who looked for a job had less success than graduates from other fields, as reflected in the significantly higher-than-average number of graduates who remained unemployed.

Occupations

Of the graduates working full-time two years after graduation, more than half found jobs in product fabricating, assembling and repairing occupations, especially as motor vehicle mechanics and repairers (auto body repairers). Others were working in various occupations in numbers too small to indicate any significant occupational pattern.

The Course in Retrospect

These graduates had about the same attitude toward their early labour market experiences as graduates in auto mechanics. However, they were less likely to find jobs that matched their training program, and a higher proportion of them believed they were over-qualified for their current job. When asked if they would be ready to repeat the same educational program, 60% answered positively. This proportion is comparable to the trade-level average.

Auto Mechanics

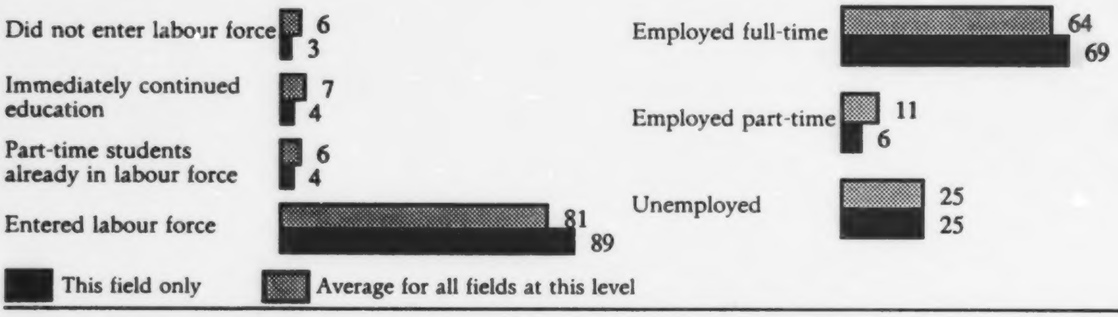
Trade/Vocational Programs
Public Trade Schools and Similar Institutions (11 months)

Graduate Trends

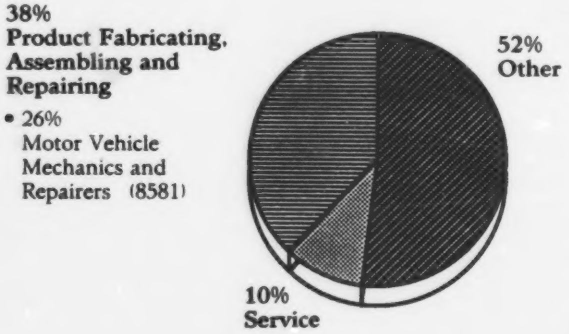
	1983-84*
Number of Graduates	2,390
% of Total Trade/Vocational Graduates	3.2

* This is the only period, since 1977, for which comprehensive and reliable data covering all provinces, territories and fields of study were available. Given this lack of historical data and the recent release of the data for 1983-84, no projections are yet available.

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation



Auto Mechanics

Trade/Vocational Programs
Public Trade Schools and Similar Institutions (11 months)

This program is designed to provide training for occupations in which the trainee has had little or no prior preparation. Areas of specialization include auto electricity, auto transmissions, brakes, diagnostic mechanical equipment, front-end mechanics and tire repair and servicing. According to 1984 data, students who were enrolled in this program had, on average, completed a high-school diploma prior to enrollment. However, the admission requirements vary according to the type of program (pre-employment or skill upgrading), the institution and the province. In 1983-1984, all provinces except Prince Edward Island offered such a program, which usually lasted 11 months. Most graduates were men; women represented less than 5% of the graduating population.

Graduate Trends and Projections

According to the 1984 data, the number of graduates reported in this field totalled almost 2,400, accounting for approximately 3.2% of all graduates at this level. If the current popularity of this course and the capacity of relevant faculties to absorb new students hold over the 1987 to 1995 period, the average annual number of graduates should decline slightly, owing to the declining size of the corresponding population age group.

Destination of Graduates

A greater-than-average proportion of graduates entered the labour force upon graduation. Their success was comparable to that of graduates from other fields, as seen in their average unemployment rate.

Occupations

A significant proportion of graduates working full-time were employed in occupations related to product fabricating, assembling and repairing, especially as motor vehicle mechanics and repairers. Others found work in service occupations or other areas, in numbers too small to be significant. For positions as motor vehicle mechanics and repairers, graduates in this field face competition from graduates in related mechanical engineering technologies at the trade and college levels.

The Course in Retrospect

Of those who were employed full-time, a lower-than-average proportion found jobs related to their training program. This partly explains why they were more likely than other graduates to think they were over-qualified for their current job. However, a proportion roughly comparable to the average for this level stated they would make the same educational choice, if they had to make that decision again.

Heavy Equipment Mechanics

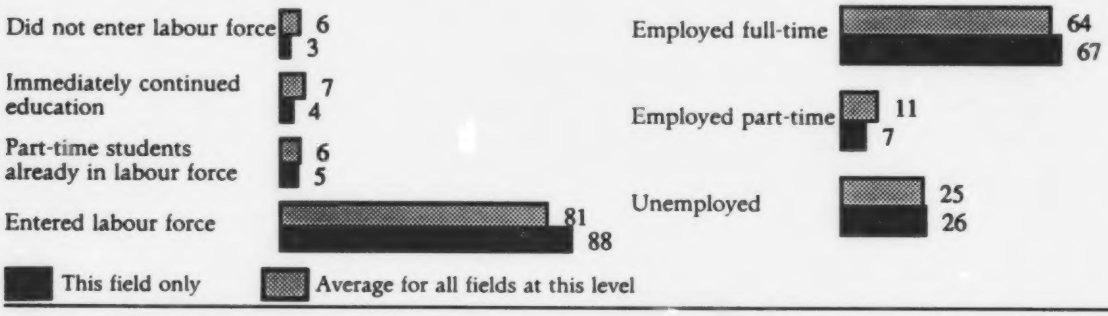
Trade/Vocational Programs
Public Trade Schools and Similar Institutions (9 months)

Graduate Trends

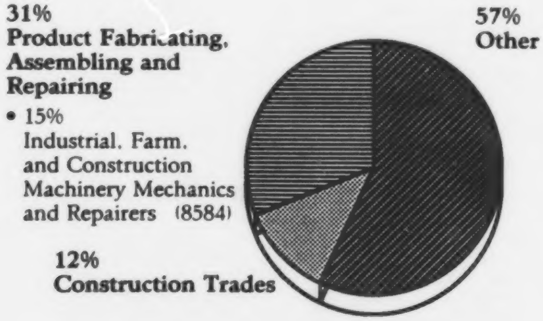
	1983-84*
Number of Graduates	2,950
% of Total Trade/Vocational Graduates	3.9

* This is the only period, since 1977, for which comprehensive and reliable data covering all provinces, territories and fields of study were available. Given this lack of historical data and the recent release of the data for 1983-84, no projections are yet available.

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation



Engineering and Engineering Technologies

Heavy Equipment Mechanics

Trade/Vocational Programs
Public Trade Schools and Similar Institutions (9 months)

This field of study includes training programs related to back hoe operation, crane operations, forestry mechanical equipment, load bulldozer operation, and the occupations of millwright and pipeline mechanic and rigger. The entrance requirements in this field vary with the type of program (pre-employment or skill upgrading), the institution and the province. Students who enroll in this training program usually have a high-school diploma, even though this may not always be essential. The average duration of the program is nine months. In 1983-1984, students graduated from the course in all provinces and territories except Prince Edward Island and Quebec. Men represented approximately 95% of the graduating population.

Graduate Trends and Projections

In 1983-1984, there were close to 3,000 successful completions in this training program, making it one of the largest areas of training at the trade-level. Graduates of the program represent 4% of all the registered completions. If the current popularity of this course and the capacity of relevant faculties to absorb new students hold over the 1987 to 1995 period, the average annual number of graduates should decline slightly, owing to the declining size of the corresponding population age group.

Destination of Graduates

On average, more graduates from this program decided to enter the labour force than in other trade/vocational programs. They were relatively successful in finding jobs, as indicated by their average unemployment rate and the slightly higher-than-average proportion of them who found full-time employment.

Occupations

Almost one-third of the graduates in this program entered occupations in product fabricating, assembling and repairing. A significant proportion found jobs as industrial, farm and construction machinery mechanics and repairers, while another large number were employed in the construction trades. Heavy Equipment Mechanics must compete with college graduates in related fields for some of these occupations.

The Course in Retrospect

Although an average proportion of the graduates in this field of study were satisfied with their current job, they were unlikely to have work related to their training program. Many also thought they were over-qualified for their job. In keeping with these less-than-favourable indicators, only about 55% of the graduates, compared with 60% of all trade-level graduates, said they would take the same program of study if they had to make this educational decision again.

Other Mechanical Engineering Technologies

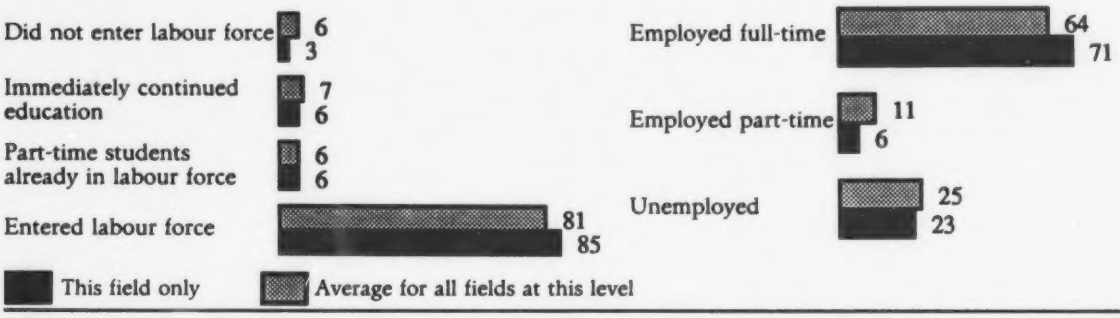
Trade/Vocational Programs
Public Trade Schools and Similar Institutions (10 months)

Graduate Trends

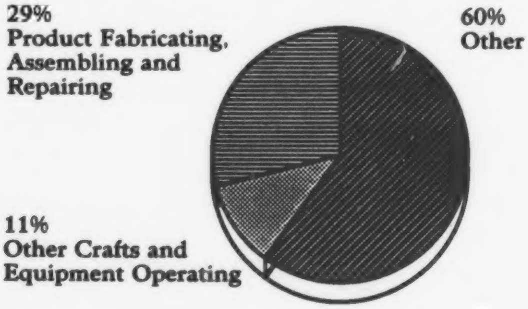
	1983-84*
Number of Graduates	2,832
% of Total Trade/Vocational Graduates	3.8

* This is the only period, since 1977, for which comprehensive and reliable data covering all provinces, territories and fields of study were available. Given this lack of historical data and the recent release of the data for 1983-84, no projections are yet available.

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation



Engineering and Engineering Technologies

Other Mechanical Engineering Technologies

Trade/Vocational Programs
Public Trade Schools and Similar Institutions (10 months)

This field of study offers training programs in such areas as aircraft mechanics, marine mechanics, small engine mechanics, agricultural equipment mechanics and hydraulics. On average, students who enrolled in this training program in 1982 had completed secondary school prior to enrollment, although this was not necessarily the minimum requirement for admittance. Prerequisites vary according to the type of program (pre-employment or skill upgrading), the institution and the province. The course is approximately 10 months long, and in 1983-1984, was offered in all provinces and territories except Yukon Territory. Men accounted for roughly 95% of all graduates.

Graduate Trends and Projections

In 1983-1984, there were about 2,800 successful completions in this field of study, representing close to 4% of all graduations at this level. If the current popularity of this course and the capacity of relevant faculties to absorb new students hold over the 1987 to 1995 period, the average annual number of graduates should decline slightly, owing to the declining size of the corresponding population age group.

Destination of Graduates

Upon completion of their program, the majority of graduates in this field entered the labour force, where they fared relatively well, as reflected by their slightly lower-than-average unemployment rate. They were also more likely than other trade-level graduates to find full-time work.

Occupations

Graduates working full-time were employed in product fabricating, assembling and repairing occupations or in equipment operating occupations. Owing to the diversity of the specialties in this field of study, more specific occupational trends have not been observed.

The Course in Retrospect

In general, graduates who were employed full-time were as satisfied with their job as was average for this level. A slightly smaller-than-average percentage had jobs related to their educational program. In spite of the relatively good labour market outcomes of these graduates, only about 55%, compared with 60% of all trade-level graduates, stated they would make the same educational choice again.

Other Engineering

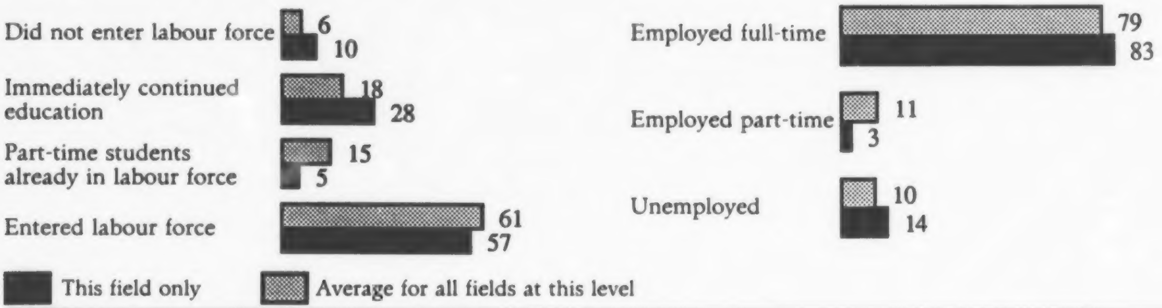
Undergraduate
University (4 years)

Engineering and Engineering Technologies

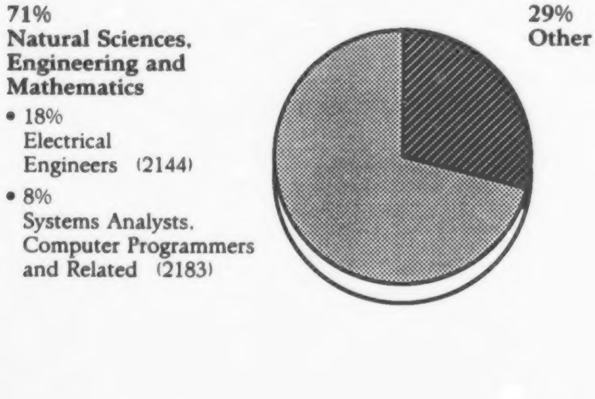
Graduate Trends and Projections

	1971	1981	1985	1986	1995
Number of Graduates	917	1,557	2,060	2,150	2,040
% of Total Undergraduate Degrees	1.3	1.6	1.8	1.8	1.8

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation



Other Engineering

Undergraduate
University (4 years)

At the undergraduate level, this field of study includes programs in aeronautical and aerospace engineering, industrial engineering, mining engineering, metallurgical engineering, engineering science and other related specializations. Given the variety of these programs, the analysis relevant for the field as a whole may not hold true for each individual program. In general, the minimum entrance requirement is a high-school diploma with good standing in chemistry, physics, mathematics and biology. Quebec students applying to a Quebec university must have a Diploma of Collegial Studies in the above-mentioned courses. All provinces except Prince Edward Island offer undergraduate programs in these engineering fields. The course takes, on average, four years, depending on the field, the institution and the province. In some institutions, students may take the course through a CO-OP program or a program leading to an undergraduate diploma or certificate.

Graduate Trends and Projections

Between 1971 and 1985, the annual number of graduates doubled. During the first half of the 1980s, approximately 1,860 students per year received degrees in this field. The relative popularity of the course has also grown since the early 1970s, and graduates in Other Engineering now represent 1.8% of all graduates at this level. If the current popularity of this course and the capacity of relevant faculties to absorb new students hold over the 1987 to 1995 period, 2,100 students per year should graduate in Other Engineering.

Destination of Graduates

According to 1984 data, a significantly greater-than-average proportion of the graduates in this field of study pursued higher education, and a lower-than-average proportion entered the labour force. Those who sought employment were not too successful: their unemployment rate was greater than average for this level.

Occupations

Two years after graduation, the majority of graduates working full-time were employed in occupations related to engineering and mathematics, for example as electrical engineers and systems analysts. The others entered a variety of occupations, but were not concentrated in any one.

The Course in Retrospect

The 1982 graduates in this field faced labour market conditions that were more favourable than average. They had good chances of finding a job related to their program of study and were not likely to think they were over-qualified for their job. A higher-than-average proportion stated they would take the same educational program if they had to make that decision again.

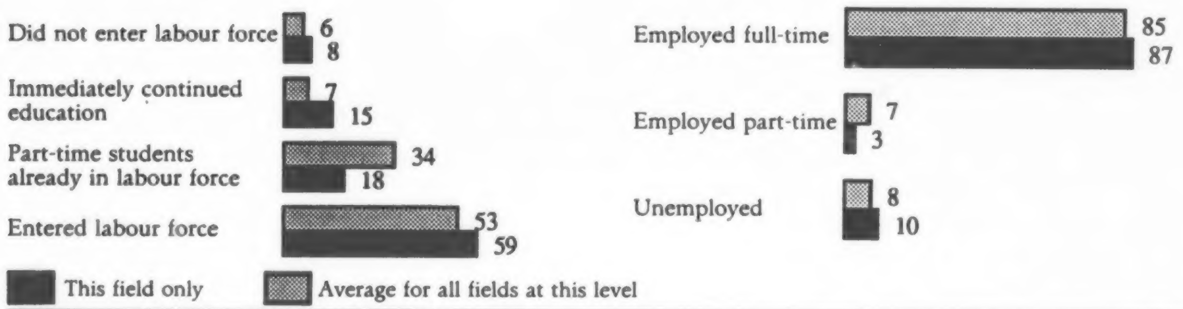
Other Engineering

Master's
University (2 years)

Graduate Trends and Projections

	1971	1981	1985	1986	1995
Number of Graduates	252	257	375	370	335
% of Total Master's Graduates	2.4	1.8	2.2	2.2	2.2

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation

76%
Natural Sciences, Engineering and Mathematics

- 16%
  Electrical Engineers (2144)
- 11%
  Systems Analysts and Computer Programmers (2183)
- 7%
  Civil Engineers (2143)
- 6%
  Professional Engineers (2159)

10%
Management and Administration

14%
Other

Engineering and Engineering Technologies

Other Engineering

Master's
University (2 years)

At the master's level, this field of study includes such specializations as aeronautical and aerospace engineering, industrial engineering, mining engineering, biomedical engineering, geological engineering, petroleum engineering and agricultural engineering. The prerequisites for entrance into this field vary by institution, but in general, candidates must have an honours undergraduate degree or the equivalent in this or a closely related field of study from a recognized university. As mentioned in the introduction, holders of graduate diplomas and certificates are included with master's graduates. The diploma or certificate programs are usually shorter than the master's program and may be taken following either an undergraduate or a master's degree. Only 10% of the 1985 graduates in this field received diplomas or certificates as opposed to degrees. The course is offered in all provinces except Prince Edward Island and generally takes two years, depending on the institution. In some institutions, it is possible to graduate through involvement in a CO-OP program. According to 1984 data, roughly 10% of the graduates received their qualification in this manner. The majority of graduates were men (90%) and were concentrated in Ontario (40%).

Graduate Trends and Projections

Enrollments, and therefore graduations, depend on the capacity of the specific faculty to absorb new students and on the demand for entrance. Both these factors are influenced, in part, by the current and anticipated labour market situation. Since 1981, the annual number of graduates has averaged 350. The popularity of this course (as for most other engineering disciplines), as reflected by its share of all master's graduates, declined between 1971 and 1981 but has since begun to rise. If the course's current popularity and faculty capacities hold over the 1987 to 1995 period, about 350 students should graduate from this course per year. The number of new graduates competing for related employment is therefore expected to be about the same over the projection period as it was from 1981 to 1985.

Destination of Graduates

Upon graduation, greater-than-average proportions of graduates either entered the labour force or continued their education. This statistic is a result of the lower-than-average proportion of graduates who had been working and attending school part-time. The success of Other Engineering master's graduates in finding employment was slightly lower than for other master's graduates, primarily because those who were unable to find full-time employment were also unable to find part-time work.

Occupations

The majority of Other Engineering graduates working full-time two years after graduation were employed in the engineering field as electrical or civil engineers or in the business service industry as systems analysts. The remainder were working in various other occupations, particularly in management and administration. Graduates seeking employment face competition primarily from other engineering graduates at the university level.

The Course in Retrospect

The 1984 survey indicated that not only were 1982 graduates in this field less successful than other master's graduates in finding employment, but also a slightly lower-than-average proportion thought their job matched their field of study. Slightly more than average deemed they were over-qualified for their current position. In keeping with this and lower overall job satisfaction, approximately 75% of the graduates, compared with 80% of all master's graduates, indicated that they would follow the same educational route if they had to make this choice again.

Other Engineering

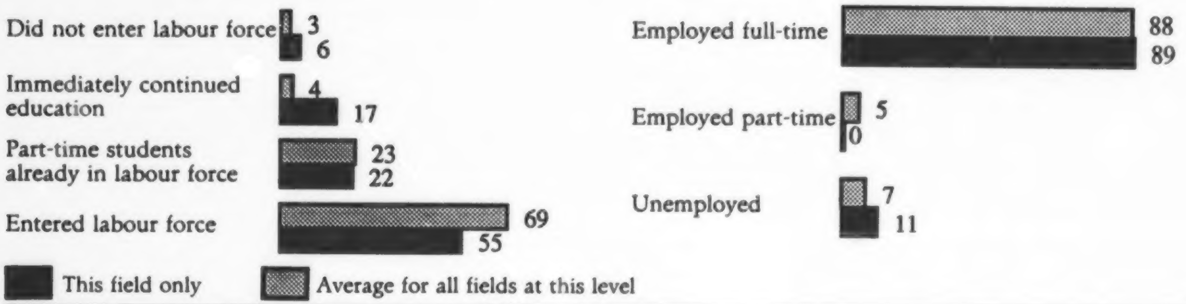
Doctorate
University (3 years)

Engineering and Engineering Technologies

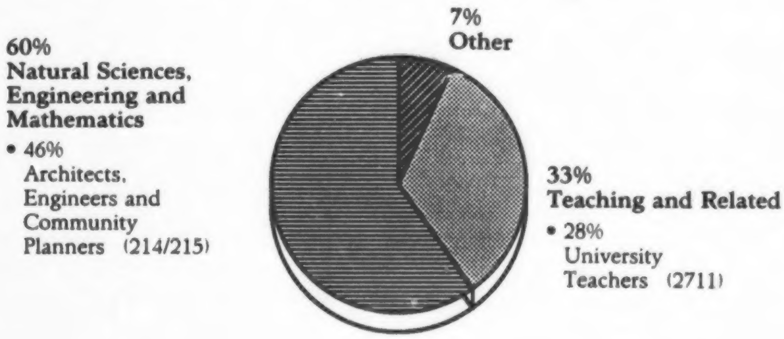
Graduate Trends and Projections

	1971	1981	1985	1986	1995
Number of Graduates	36	54	61	65	65
% of Total Doctorate Graduates	2.2	3.0	3.1	3.1	3.1

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation



Other Engineering

Doctorate
University (3 years)

This field of study groups engineering programs not mentioned in other fields of study, such as programs in aeronautical and aerospace engineering, industrial engineering, mining engineering, metallurgical engineering, engineering science and other related specializations. Given the variety of disciplines in this grouping, the following general analysis may not apply in each one. Generally, students applying for entrance must possess a master's degree or the equivalent and have a good knowledge of the field of specialization. These programs take an average of three years, depending on the discipline and the institution, and are offered in all provinces except Prince Edward Island and Manitoba (not all programs are necessarily offered in any one province). The *Directory of Canadian Universities* published by the Association of Universities and Colleges of Canada indicates where each specialty is taught. Some courses of study are offered through a CO-OP program. The average age of graduates in Other Engineering is significantly lower than in other fields.

Graduate Trends and Projections

An annual average of 50 students graduated from this group of engineering fields during the early 1980s, a slight increase over the 1970s. The relative popularity of the grouping also grew over the same period: graduates from the field represented more than 3% of all PhD graduates in 1985. If the course's current popularity and the capacity of relevant faculties to absorb new students hold over the 1987 to 1995 period, about 70 students should graduate from this course per year.

Destination of Graduates

According to 1984 data, graduates from these programs were less likely to enter the labour force than other PhD graduates. A significant proportion decided instead to continue their studies. Of those who sought employment, an average proportion found full-time work. The unemployment rate for graduates of these programs was higher than average.

Occupations

Like most engineering graduates at this level, PhD graduates from this field of study found work either in engineering occupations or in teaching, primarily as university teachers.

The Course in Retrospect

An average proportion of the graduates in these programs found their job to be related to their course of study and were satisfied with the type of work they were doing. They were more likely than other graduates to consider themselves over-qualified for their job, and a smaller-than-average proportion stated they would enroll in the same program if they had to make that decision again.

Instrumentation

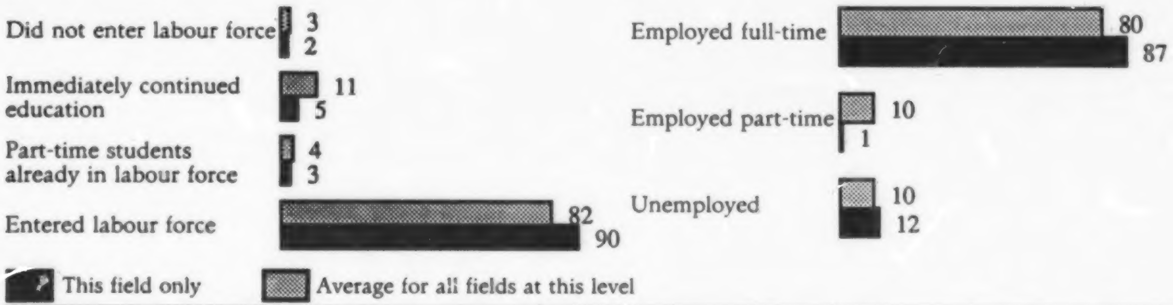
Career Program
Community College (2 years)

Engineering and Engineering Technologies

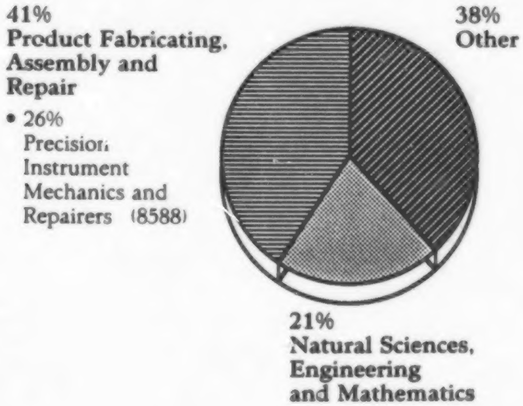
Graduate Trends and Projections

	1977	1981	1985	1986	1995
Number of Graduates	259	377	633	640	604
% of Total Community College Graduates	0.7	0.8	1.1	1.1	1.1

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation



Engineering and Engineering Technologies

Instrumentation

Career Program
Community College (2 years)

The career program in this field of study covers such areas as assembling, industrial control, inspecting, instrument repair, measurement and numerical control, oscilloscope operating and precision instrumentation. The prerequisites for entrance into the field vary from institution to institution, but in general, candidates must have completed senior high-school courses in English (French), mathematics, physics, chemistry and draughting. Courses in mechanics and computers as well as electrical/electronics courses are also recommended. The course is offered in all provinces except Newfoundland and Prince Edward Island and generally takes two years, depending on the institution. At some colleges, it is possible to take this course through a CO-OP program, although only 5% of Instrumentation graduates received their certificate or diploma in this manner, according to 1984 data. The majority of graduates were men (97%) and were concentrated in Quebec (43%).

Graduate Trends and Projections

Enrollments, and therefore graduations, depend on the capacity of the specific faculty to absorb new students and on the demand for entrance. Both these factors are influenced, in part, by the current and anticipated labour market situation. Since 1981, the annual number of graduates has averaged 500. The popularity of this course, as reflected by its share of all community college graduates, increased very slowly but consistently between 1977 and 1986. If the course's current popularity and faculty capacities hold over the 1987 to 1995 period, 600 students should graduate from this course per year.

Destination of Graduates

Upon graduation, a significantly greater proportion of graduates in this field than in other college fields entered the labour force, a statistic resulting largely from the significantly lower-than-average proportion of Instrumentation graduates who continued their education. Graduates in this field had about the same probability of finding jobs as other college graduates, but a significantly greater-than-average proportion of Instrumentation graduates found full-time employment.

Occupations

The majority of Instrumentation graduates working full-time two years after graduation were employed as precision instrument mechanics and repairers. The remainder were working in a variety of other occupations, particularly in engineering. Graduates seeking employment as precision instrument mechanics and repairers face competition primarily from college graduates from the electrical/electronics field of study.

The Course in Retrospect

Although the transition from school to work was about the same for Instrumentation graduates as for other college graduates in terms of employment, graduates in this field were generally less satisfied with their jobs. However, only about 20% thought they were overqualified for the job, compared with 35% of all college graduates. A slightly smaller-than-average proportion of Instrumentation graduates stated they would follow the same educational route if they had to make the choice again.

Other Engineering Technologies (Surveying)

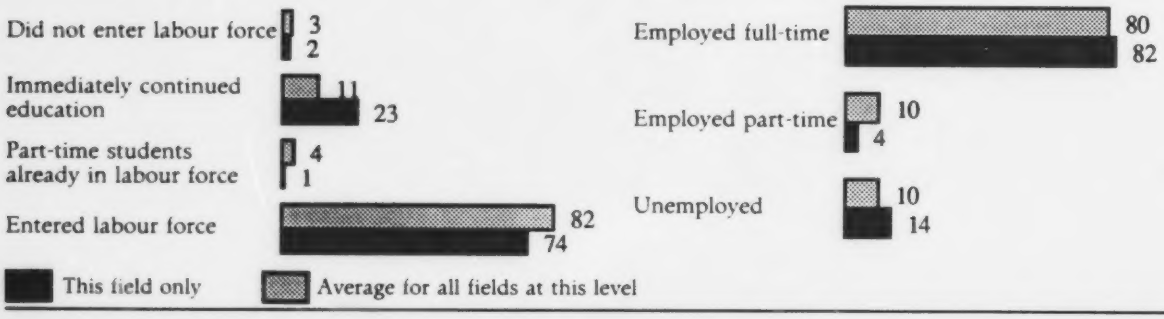
Career Program
Community College (2 years)

Engineering and Engineering Technologies

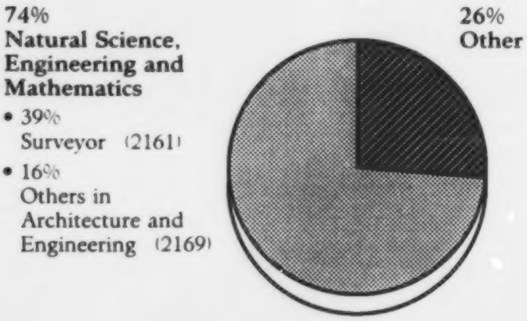
Graduate Trends and Projections

	1977	1981	1985	1986	1995
Number of Graduates	285	300	236	240	225
% of Total Community College Graduates	0.8	0.6	0.4	0.4	0.4

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation



Other Engineering Technologies (Surveying)

Career Program
Community College (2 years)

This field of study includes programs in areas such as aerial surveying, civil/surveying engineering, hydrographic surveying and seismic, gravity and magnetometer surveying. The prerequisites for entrance into this field of study vary by institution, but in general, candidates must have completed senior high-school courses in English, mathematics and draughting and have two different science credits. The course is offered in all provinces except Prince Edward Island and New Brunswick and usually takes two years, depending on the institution. At some colleges, it is possible to graduate through involvement in a CO-OP program. According to 1984 data, roughly 10% of the Surveying graduates received their certificate or diploma in this manner. The majority of the graduates were men (80%) and were concentrated in Ontario (40%).

Graduate Trends and Projections

Enrollments, and therefore graduations, depend on the capacity of the specific faculty to absorb new students and on the demand for entrance. Both these factors are influenced, in part, by the current and anticipated labour market situation. Since 1981, the annual number of graduates has averaged 250. The popularity of this course, as reflected by its share of all community college graduates, declined slowly and consistently between 1977 and 1986. If the course's current popularity and faculty capacities hold over the 1987 to 1995 period, 200 students should graduate from this course per year. The number of new graduates competing for related employment is therefore expected to be lower over the projection period than it was from 1981 to 1985.

Destination of Graduates

Upon graduation a significantly higher proportion of Surveying graduates (25%) than other college graduates continued their education and a significantly lower proportion (75%) entered the labour force. Surveying graduates were more likely to remain unemployed, since fewer of them were able to find either part-time or full-time work.

Occupations

Surveying graduates working full-time two years after graduation were employed mostly as surveyors in the architectural, engineering and other scientific and technical service industry. Others were working in a variety of other occupations, particularly in related engineering occupations. Graduates seeking employment as surveyors face competition primarily from other engineering graduates at both the college and university levels.

The Course in Retrospect

In spite of the slightly poorer-than-average labour market outcome of Surveying graduates (14% unemployment rate), the graduates' satisfaction with their job was greater than for most other college graduates. Most thought their current job matched their field of study, and few considered themselves over-qualified for their position. A slightly lower-than-average proportion of surveying graduates (60%) stated they would follow the same educational route if they had to make the decision again.

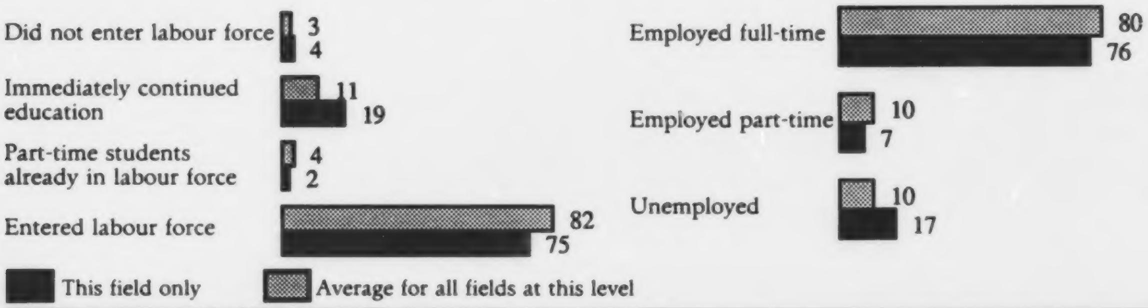
Other Engineering Technologies

Career Program
Community College (2 years)

Graduate Trends and Projections

	1977	1981	1985	1986	1995
Number of Graduates	397	598	750	760	715
% of Total Community College Graduates	1.1	1.3	1.3	1.3	1.3

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation

53%
Natural Sciences, Engineering, and Mathematics

- 23% Draughting (2163)
- 10% Surveyors (2161)
- 8% Engineering, Technologists and Technicians (2165)

11%
Product Fabricating, Assembling and Repair

- 6% Mechanics and Repairers (858)

7%
Management

29%
Other

Engineering and Engineering Technologies

Other Engineering Technologies

Career Program
Community College (2 years)

This field of study includes programs in such areas as engineering design or draughting, cartography, mechanical draughting, repairs and service, meteorology and physics. The prerequisites for entrance into the field vary by institution, but in general, candidates must pass an interview and have completed senior high-school courses in English (French), mathematics, physics, draughting and geography. The course is offered in all provinces except Prince Edward Island and usually takes two years, depending on the institution. In some institutions, it is possible to graduate through involvement in a CO-OP program. According to 1984 data, roughly 5% of the graduates in this program received their certificate or diploma in this manner. The majority of the graduates were men (85%) and were concentrated in Quebec (40%).

Graduate Trends and Projections

Enrollments, and therefore graduations, depend on the capacity of the specific faculty to absorb new students and on the demand for entrance. Both these factors are influenced, in part, by the current and anticipated labour market situation. Since 1981, the annual number of graduates has averaged 675. The popularity of this course, as reflected by its share of all community college graduates, increased slightly between 1977 and 1981, but has held fairly constant since then. If the course's current popularity and faculty capacities hold over the 1987 to 1995 period, 700 students should graduate from this course per year.

Destination of Graduates

Upon graduation, fewer of these graduates than other college graduates entered the labour force, a statistic resulting largely from the greater-than-average number who continued their education. Other Engineering Technologies graduates also had much more difficulty in finding a job, either full- or part-time.

Occupations

Graduates working full-time two years after graduation were employed mostly as draughtspersons, surveyors or engineering technologists or technicians in the architectural, engineering and other scientific technical service industry. The remainder were working in various other occupations, particularly in product fabricating, assembly and repair, and management. Graduates seeking employment as draughtspersons face competition primarily from other college graduates (in architecture design/draughting technologies), from trade/vocational graduates (in draughting) and from university graduates with a bachelor's degree in architecture.

The Course in Retrospect

Despite their difficulty in finding employment, an average proportion of graduates in this field of study were satisfied with their current job and were not likely to think they had more qualifications than their work required. Perhaps because of their higher-than-average unemployment rate and slightly lower-than-average annual salaries, only about 50% of the graduates, compared with 65% of all college graduates, said they would select the same course if they had to choose again.

Other Engineering Technologies (Draughting)

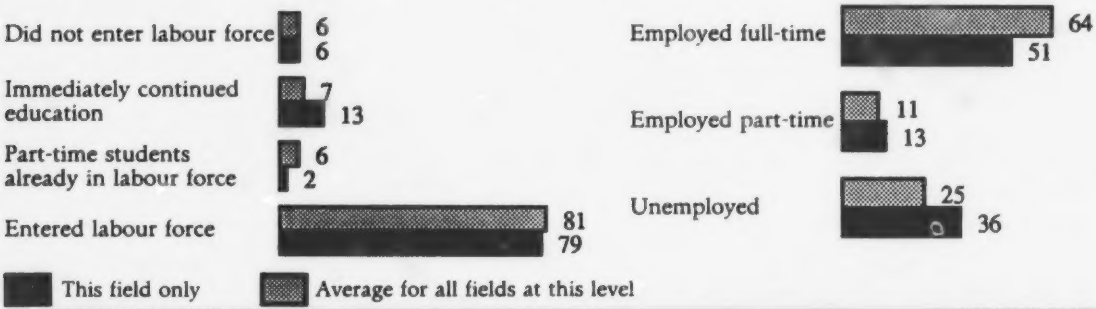
Trade/Vocational Programs
Public Trade Schools and Similar Institutions (11 months)

Graduate Trends

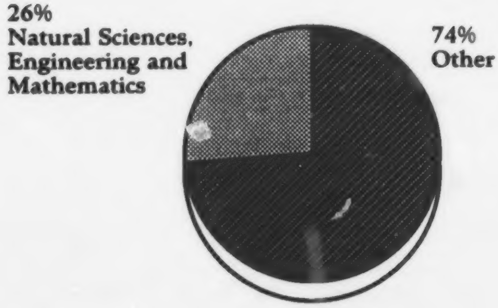
	1983-84*
Number of Graduates	1,252
% of Total Trade/Vocational Graduates	1.7

* This is the only period, since 1977, for which comprehensive and reliable data covering all provinces, territories and fields of study were available. Given this lack of historical data and the recent release of the data for 1983-84, no projections are yet available.

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation



Engineering and Engineering Technologies

Other Engineering Technologies (Draughting)

Trade/Vocational Programs
Public Trade Schools and Similar Institutions (11 months)

Training programs in Draughting cover engineering design and draughting, cartography and mechanical draughting. The prerequisites for admittance to these programs vary by type of program (pre-employment or skill upgrading), by institution and by province, although students who were enrolled in the programs in 1982 had, on average, completed secondary school prior to enrollment. The course of study lasts approximately 11 months and, in 1983-1984, was offered by all provinces except Prince Edward Island, Quebec and Saskatchewan. Women represented about one-third of the graduating population.

Graduate Trends and Projections

In 1983-1984, more than 1,250 successful completions were registered in this field of study, representing close to 2% of all completions at this level. If the current popularity of this course and the student capacities of the relevant faculties hold over the 1987 to 1995 period, the average annual number of graduates should decline slightly, owing to the declining size of the corresponding population age group.

Destination of Graduates

A greater-than-average proportion of graduates decided to pursue higher education upon completion of their program. The majority however, entered the labour force. Their significantly higher-than-average unemployment rate indicates they were not as successful as graduates from other fields in securing a job.

Occupations

Two years after graduation, a large proportion of graduates employed full-time were working in the natural sciences, engineering and mathematics. Others were employed in a variety of occupations in numbers too small to be reported.

The Course in Retrospect

Draughting graduates were less positive about their early experiences in the labour market than other trade/vocational graduates. A lower-than-average number were satisfied with their current job and were more likely to consider themselves over-qualified for it. Similarly, only about 55% of the graduates, compared with 60% of all trade-level graduates, stated they would make the same educational choice if they had to choose again.

Transportation Engineering Technologies

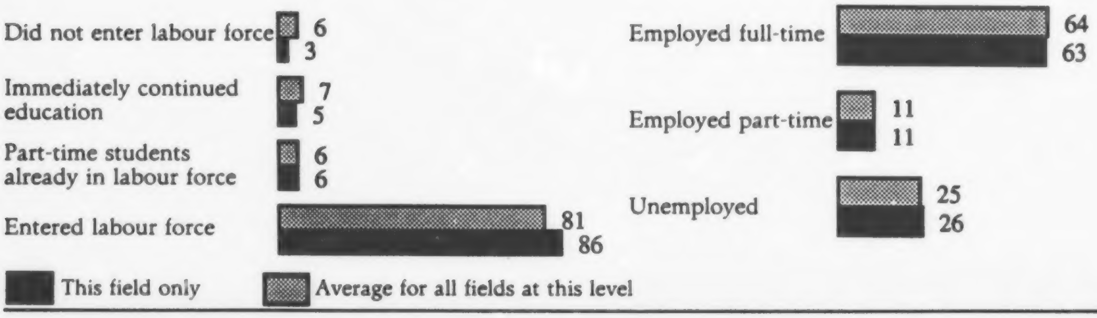
Trade/Vocational Programs
Public Trade Schools and Similar Institutions (3 months)

Graduate Trends

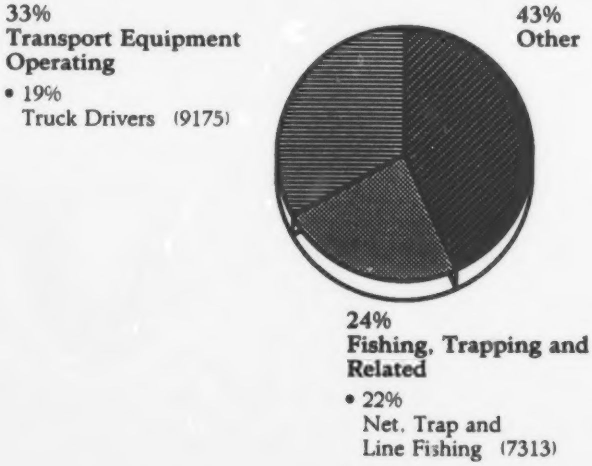
	1983-84*
Number of Graduates	4,277
% of Total Trade/Vocational Graduates	5.7

* This is the only period, since 1977, for which comprehensive and reliable data covering all provinces, territories and fields of study were available. Given this lack of historical data and the recent release of the data for 1983-84, no projections are yet available.

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation



Engineering and Engineering Technologies

Transportation Engineering Technologies

Trade/Vocational Programs
Public Trade Schools and Similar Institutions (3 months)

Training programs in this field of study cover such areas as motor transportation, marine transportation, air transportation and rail transportation. The basic requirements for entrance to the program vary according to the type of program, the institution and the province. In general, students who enroll in this course have completed a high-school diploma, although this may not always be essential. The program takes approximately three months and in 1983-1984 was offered in all provinces except Nova Scotia. A 1984 survey indicated that the average age of graduates was 26; women represented only about 10% of the graduating population.

Graduate Trends and Projections

In 1983-1984, there were almost 4,300 successful completions in this training program, accounting for approximately 6% of all completions at this level. If the current popularity of this course and the capacity of relevant faculties to absorb new students hold over the 1987 to 1995 period, the average annual number of graduates should decline slightly, owing to the decreasing size of the corresponding population age group.

Destination of Graduates

Upon graduation, an average proportion of graduates in this course of study entered the labour force, where they were as successful as graduates from other fields. This fact is reflected in their unemployment rate (26%) and full-time employment rate (63%), which are average for this level.

Occupations

Of the graduates working full-time two years after graduation, a significant proportion were employed in transport equipment operating occupations, especially as truck drivers. Another important percentage, probably trained in marine transportation, found work in fishing occupations. Other graduates were found in a variety of occupations in numbers too small to be statistically important.

The Course in Retrospect

An average proportion of graduates working full-time found their current job to be related to their training program, but they were more likely than others to consider themselves over-qualified for it. This, combined with their average unemployment rate, may have caused them to find their jobs less satisfying than graduates in other fields. However, a higher-than-average proportion stated they would enroll in the same program if they had to make the choice again. College graduates in this course of study reported a slightly more favourable labour market outcome.

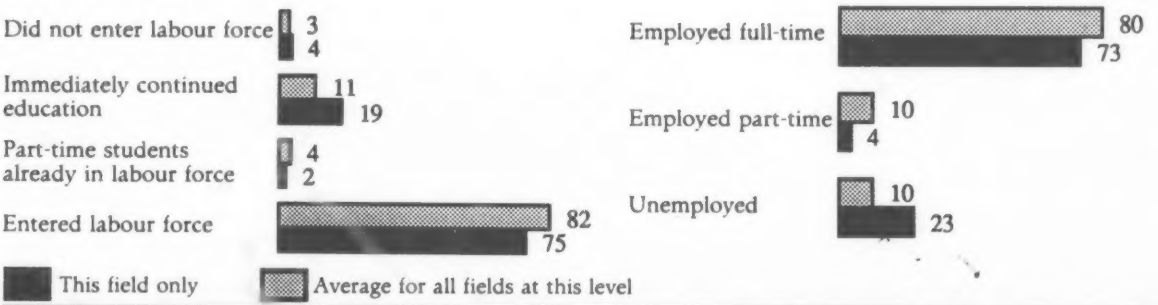
Transportation Technologies

Career Program
Community College (2 years)

Graduate Trends and Projections

	1977	1981	1985	1986	1995
Number of Graduates	209	300	328	335	315
% of Total Community College Graduates	0.6	0.6	0.6	0.6	0.6

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation

26%
Transportation Equipment Operations

- 13%
  Deck Officers (9151)
- 8%
  Air Pilots, Navigators and Flight Engineers (9111)

18%
Product Fabricating, Assembly and Repair

- 9%
  Aircraft Mechanics and Repairers (8582)

15%
Clerical

41%
Other

Engineering and Engineering Technologies

Transportation Technologies

Career Program
Community College (2 years)

This field of study includes programs in air transport (pilot training, air traffic controller, flight attendant training), motor transport (bus, tow truck, tractor-trailer driver training), and rail and marine transport (ship master/mate and navigator training and seamanship). The prerequisites for entrance into this field of study vary by institution, but in general, candidates must pass an interview, undergo diagnostic English, mathematics and motor skills tests, pass a medical examination and have successfully completed senior high-school courses in English, mathematics, physics and chemistry. The course is offered in all provinces except Prince Edward Island, New Brunswick, Manitoba and Saskatchewan. The duration of the program varies according to the institution, but usually spans two years. At some colleges, it is possible to graduate through involvement in a CO-OP program. According to 1984 data, roughly 20% of graduates in Transportation Technologies received their certificate or diploma in this manner. The majority of the graduates were men (85%) and were concentrated in Ontario (30%).

Graduate Trends and Projections

Enrollments, and therefore graduations, depend on the student capacity of the specific faculty and on the demand for entrance. Both these factors are influenced, in part, by the current and anticipated labour market situation. Since 1981, the annual number of graduates has averaged 325. The popularity of this course, as indicated by its share of all community college graduates, remained fairly constant from 1977 to 1986. If the course's current popularity and faculty capacities hold over the 1987 to 1995 period, 300 students should graduate from this course per year. The number of new graduates competing for related employment is therefore expected to stay about the same over the projection period as it was between 1981 and 1985.

Destination of Graduates

Upon graduation, significantly fewer graduates in this field, than in other college fields, entered the labour force, a statistic largely resulting from the greater-than-average number who continued their education. Graduates in Transportation Technologies experienced much greater difficulty than other graduates in finding employment, either full- or part-time.

Occupations

Graduates working full-time two years after graduation were employed mostly as deck officers, pilots or aircraft mechanics in the air or water transport or aircraft and aircraft parts industries. Others were working in a variety of occupations, particularly in product fabricating, assembling and repair and clerical occupations. Graduates seeking employment in this field face competition primarily from graduates of similar courses offered at the trade/vocational level.

The Course in Retrospect

Perhaps because of the relatively poor labour market success of graduates in this field, many expressed negative feelings about the course and their current job. A small proportion thought their present job matched their field of study, and a higher-than-average proportion deemed they were over-qualified for the work they were doing. In keeping with their high unemployment rate and lower-than-average level of job satisfaction, only about 60% of the graduates, compared with 65% of all college graduates, stated they would select the same course if they had to choose again.

English

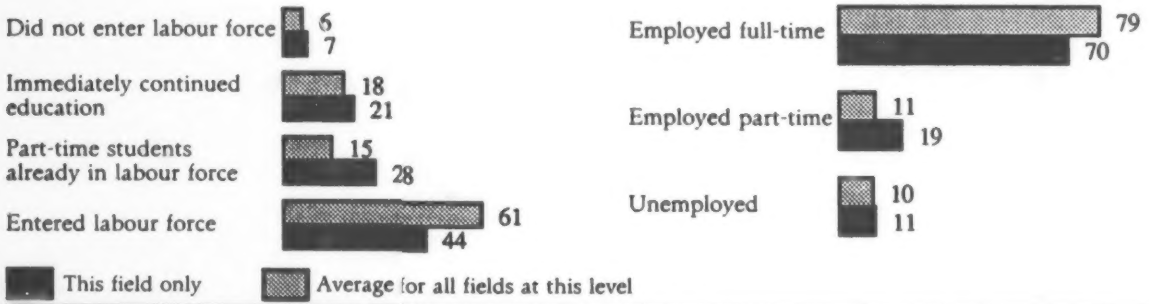
Humanities

Undergraduate
University (3 years)

Graduate Trends and Projections

	1971	1981	1985	1986	1995
Number of Graduates	3,084	2,238	3,009	3,165	3,050
% of Total Undergraduate Degrees	4.2	2.3	2.7	2.7	2.7

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation

30%
Teaching and Related

- 16%
  Elementary and Kindergarten Teachers (2731)
- 12%
  Secondary School Teachers (2733)

21%
Clerical and Related

14%
Managerial, Administrative and Related

35%
Other

Humanities

English

Undergraduate
University (3 years)

This field of study covers undergraduate programs in English language and English literature. The minimum qualification for admittance is a high-school diploma with good standing in English, except for Quebec students, who must have a Diploma of Collegial Studies. The course of study is offered in all provinces, although most students are at universities in Ontario. The duration of the program is three years. Some institutions offer programs leading to a minor or a certificate in English, which usually take less than two years. In 1985, almost 75% of the graduates from this field were women.

Graduate Trends and Projections

The relative popularity of this field decreased during the 1970s, as indicated by the proportion of undergraduate English degrees, which decreased from 4.2% in 1971 to 2.3% in 1981. Since 1981, an annual average of 2,660 students have graduated in English and the field is attracting an increasing number of people. If the current popularity of this course and the capacity of relevant faculties to absorb new students hold over the 1987 to 1995 period, 3,200 students per year should graduate in English.

Destination of Graduates

This undergraduate program is characterized by the large number of graduates who were enrolled on a part-time basis. The proportion that entered the labour force is about the same as in other fields, but English undergraduates were less successful in securing a full-time job.

Occupations

A fair number of English graduates were working as elementary or secondary school teachers two years after graduation. Other graduates found jobs in clerical and management and administrative occupations. In the teaching field, English graduates are in competition with university graduates from programs in elementary/secondary teacher training, psychology and kindergarten/pre-school teacher training and with college graduates from educational and counselling services programs. In other occupational fields, they may face job competition from holders of master's or doctorate degrees in English.

The Course in Retrospect

A significantly lower-than-average proportion of graduates reported that their job was linked to their education, and more than half of the employed graduates considered themselves over-qualified for their job. A proportion comparable to the average said they were satisfied with their current job and that they would make the same educational choice if they had to decide again.

English

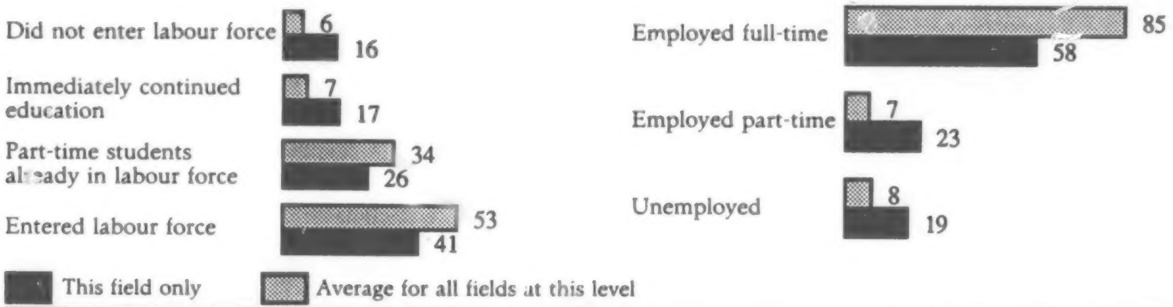
Humanities

Master's
University (2 years)

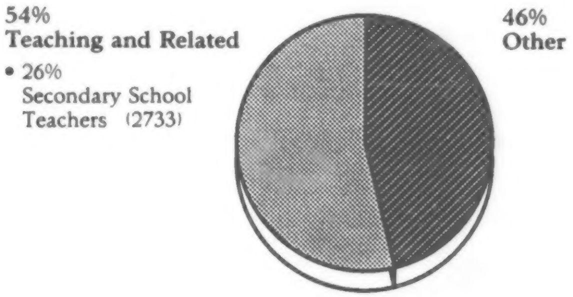
Graduate Trends and Projections

	1971	1981	1985	1986	1995
Number of Graduates	451	302	309	305	275
% of Total Master's Graduates	4.3	2.1	1.9	1.9	1.9

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation



Humanities

English

Master's
University (2 years)

At the master's level, this course of study includes programs in English language, English literature and creative writing. The prerequisites for entrance into this field of study vary by institution, but in general, candidates must have an honours undergraduate degree or the equivalent, in this or a closely related field of study from a recognized university. As mentioned in the introduction, holders of graduate diplomas and certificates are included with master's graduates. The diploma or certificate programs are usually shorter than the master's program and may be taken following either an undergraduate or a master's degree. Only about 5% of the 1985 figure shown on the opposite page is attributable to graduate diplomas or certificates. This course of study is offered in all provinces except Prince Edward Island, and generally takes two years, depending on the institution. According to 1984 data, the majority of graduates were women (60%) and were concentrated in Ontario (35%).

Graduate Trends and Projections

Enrollments, and therefore graduations, depend on the capacity of the specific faculty to absorb new students and on the demand for entrance. Both these factors are influenced, in part, by the current and anticipated labour market situation. Since 1981, the annual number of graduates has averaged 300. The popularity of this course, as reflected by the proportion of all master's graduates, declined significantly between 1971 and 1981, but has held fairly constant since then. If the current popularity of this course and faculty capacities hold over the 1987 to 1995 period, about 300 students per year should graduate from this course. The number of new graduates competing for related employment is therefore expected to be about the same over the projection period as it was between 1981 and 1985.

Destination of Graduates

The relatively small proportion of master's graduates who entered the labour force upon completion of their degree (40%) is largely a function of the significantly greater-than-average proportion who chose to continue their education (15%) or not to look for a job (15%). Graduates who did seek employment, especially full-time jobs, encountered difficulty. Approximately 20% could not find a job and only about 60% found full-time employment.

Occupations

The majority of English master's graduates working full-time two years after graduation were employed as secondary school teachers. The remainder were working in various other occupations, but were not concentrated in any one. Graduates seeking employment as secondary school teachers face competition primarily from university graduates with bachelor's degrees in elementary/secondary teacher training or physical education and from master's graduates from the education (non-teaching) field of study.

The Course in Retrospect

A 1984 survey indicated that the transition from school to work was much more difficult for 1982 graduates in this field than for other master's graduates, and that their degree of satisfaction with the job they did find was lower than average. The survey also indicated that a slightly lower-than-average proportion thought their job matched the field of study and were satisfied with their job. More English graduates than other master's graduates believed they were over-qualified for their present job. However, in spite of these statistics, a slightly greater-than-average number stated they would select the same course of study if they had to make the choice again.

English

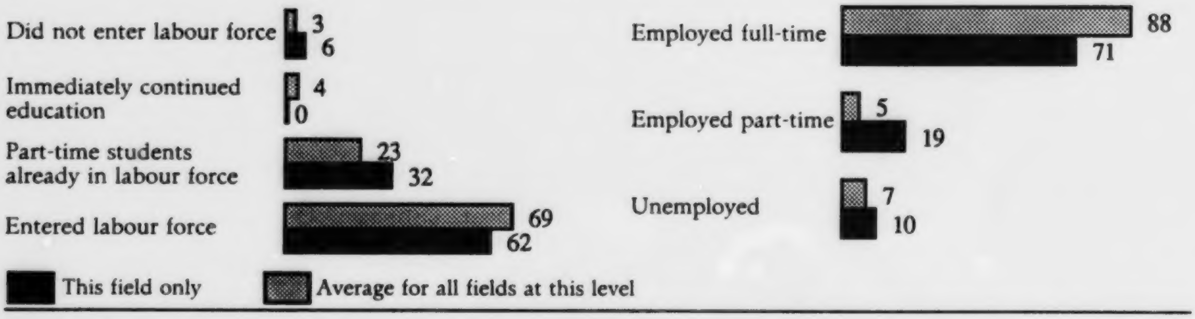
Humanities

Doctorate
University (5 years)

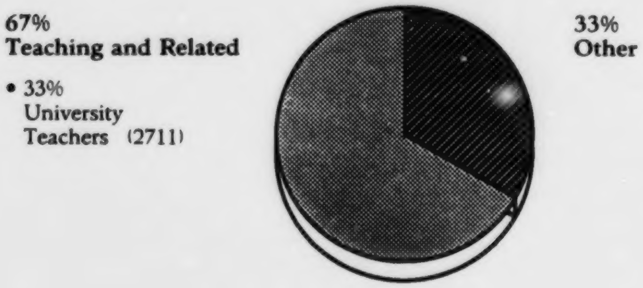
Graduate Trends and Projections

	1971	1981	1985	1986	1995
Number of Graduates	51	87	58	60	65
% of Total Doctorate Graduates	3.1	4.8	2.9	2.9	2.9

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation



Humanities

English

Doctorate
University (5 years)

Programs in English language and English literature are included at the PhD level in this major field of study. The usual qualification for admission is a master's degree or the equivalent and a good knowledge of studies related to English literature and language. The average length of the course is approximately five years. Doctorate programs in English are offered in all provinces except Prince Edward Island. The average age of PhD recipients who graduated in 1982 was slightly greater than the average for this level (37).

Graduate Trends and Projections

The number of PhD graduates in English fluctuated substantially between 1971 and 1985. On an annual average basis, however, the number of students who graduated from this course between 1971-1981 and 1981-1986, decreased slightly from 69 to 65. Likewise, the popularity of the program, represented by doctoral graduates in English as a proportion of all PhD graduates, declined from 4% during the 1970s to 3% in the early 1980s. If the current popularity of this course and the capacity of relevant faculties to absorb new students hold over the 1987 to 1995 period, about 75 students should graduate from the course per year. The number of new graduates competing for related employment is therefore expected to be about the same over the projection period as it was between 1981 and 1985.

Destination of Graduates

Upon graduation, only a marginal number of graduates decided not to enter the labour force, and none of those surveyed immediately chose to further their education. The proportion that did enter the labour force was marginally greater than the average for this level. A significantly lower-than-average proportion secured full-time jobs two years after graduation, resulting in a higher-than-average unemployment rate. About 20% of the graduates found only part-time work.

Occupations

Like the majority of PhD graduates, graduates in English found work in occupations related to teaching. According to 1984 data, one-third were employed as university teachers, while the others had jobs in a variety of occupations.

The Course in Retrospect

While only a slightly lower-than-average proportion of graduates thought their job was related to their program of study, a significant proportion (33%) were not satisfied with the job they held, and considered themselves over-qualified for it. This PhD program must offer certain rewards, however, since an average proportion of graduates stated they would choose the same field of study if they had to decide again.

French

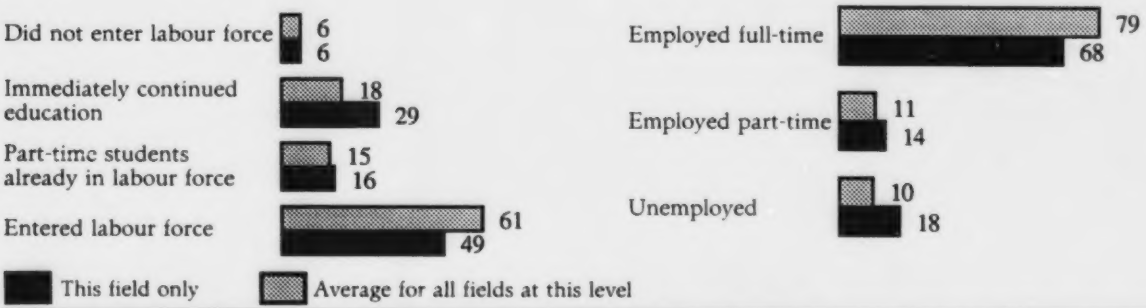
Humanities

Undergraduate
University (3 years)

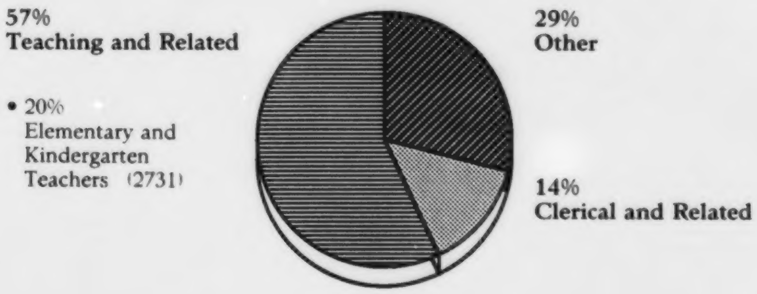
Graduate Trends and Projections

	1971	1981	1985	1986	1995
Number of Graduates	1,106	1,159	1,480	1,540	1,460
% of Total Undergraduate Degrees	1.5	1.2	1.3	1.3	1.3

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation



French

Undergraduate
University (3 years)

French language and French literature are programs in this field of study. The prerequisite for these programs is equivalent to the general requirement for entrance to the faculty of arts — a high-school diploma with emphasis on subjects such as French and humanities. In Quebec, students from that province must have a Diploma of Collegial Studies. The undergraduate degree in French is offered in all provinces, although half of all enrollments are in Ontario. The average length of the course is about three years, depending on the province and the institution. According to 1984 data, most of the students were women, and the average age at graduation was 26.

Graduate Trends and Projections

The number of graduates in this field did not vary much from 1971 to 1981, but during the early 1980s more diplomas and certificates were awarded. Although the total number of undergraduate qualifications that were awarded increased between 1981 and 1985, the proportion of undergraduates in French declined slightly to 1.3% of all undergraduates in 1985. If the current popularity of this course and the capacity of relevant faculties to absorb new students hold over the 1987 to 1995 period, 1,500 students should graduate from this course per year.

Destination of Graduates

Graduates in French had a greater tendency than other graduates to pursue studies in a related field or at a higher level. This lowers the statistics on graduates who entered the labour force. Those who looked for jobs experienced a higher unemployment rate and were less likely to find employment on a full-time basis than other undergraduates.

Occupations

Like their colleagues who studied English literature, most graduates in French were employed in teaching, at the elementary school level in particular, and in clerical occupations. When poor labour market conditions exist, graduates at this level compete more with graduates at the master's and doctorate levels.

The Course in Retrospect

Although a far lower-than-average proportion of French graduates found their job corresponded to their program of study and were more likely than other graduates to feel over-qualified for the job, their level of satisfaction with their position was above-average. In spite of this, only about 65% of the graduates, compared with 70% of all undergraduates, would select the same educational program if they had to make that decision again.

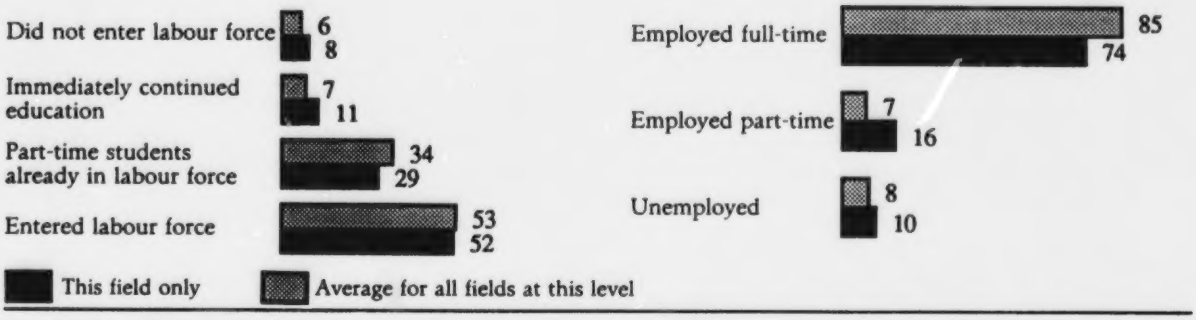
French

Master's
University (2 years)

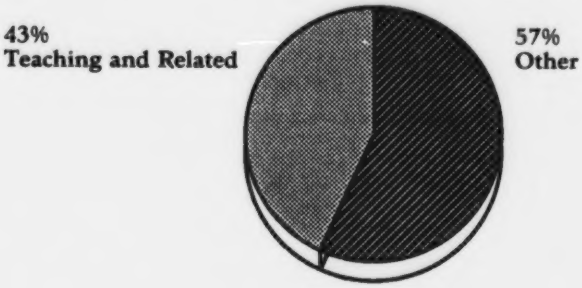
Graduate Trends and Projections

	1971	1981	1985	1986	1995
Number of Graduates	165	115	132	130	120
% of Total Master's Graduates	1.6	0.8	0.8	0.8	0.8

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation



Humanities

French

Master's
University (2 years)

Studies in French at the master's level include courses in French language, French literature and creative writing. The prerequisites for entrance into this field of study vary by institution, but in general, candidates must have an honours undergraduate degree or the equivalent in this or a closely related field of study from a recognized university. As mentioned in the introduction, holders of graduate diplomas and certificates are included with master's graduates. The diploma or certificate programs are generally shorter than the master's program and may be taken following either an undergraduate or a master's degree. All the 1985 graduates in this course of study received degrees rather than certificates or diplomas. The master's course is offered in all provinces except Prince Edward Island and Alberta and usually takes two years, depending on the institution. At some universities, it is possible to graduate through involvement in a CO-OP program. According to 1984 data, roughly 5% of French graduates received their master's degree in this manner. The majority of graduates were women (65%) and were concentrated in Quebec (65%).

Graduate Trends and Projections

Enrollments, and therefore graduations, depend on the capacity of the specific faculty to absorb new students and on the demand for entrance. Both these factors are influenced, in part, by the current and anticipated labour market situation. Since 1981, the annual number of graduates has averaged 125. The popularity of this course, as indicated by its share of all master's graduates, declined significantly between 1971 and 1981, but since then has remained constant. If the current popularity of this course and faculty capacities hold over the 1987 to 1995 period, 100 students should graduate from this course per year. The number of new graduates competing for related employment is therefore expected to be about the same over the projection period as it was from 1981 to 1985.

Destination of Graduates

The relatively small proportion of graduates who entered the labour force upon completion of their degree (50%) is largely a function of the slightly greater-than-average proportion who chose to continue their education or not to enter the labour force. Fewer French graduates than other master's graduates took the course on a part-time basis. The success of graduates who looked for employment was only slightly worse than the average for all master's fields of study, because of the significantly greater-than-average number of graduates who, unable to find full-time employment, procured part-time jobs.

Occupations

The majority of French graduates working full-time two years after graduation were employed as teachers in the education industry. The remainder were working in a variety of other occupations with no specific concentrations.

The Course in Retrospect

A 1984 survey indicated that the transition from school to work was slightly more difficult for 1982 graduates in French than for other master's graduates, and that their degree of satisfaction with the job they did find was significantly lower than average. The survey further revealed that a significantly lower-than-average proportion thought their job matched the field of study and were satisfied with their job. In addition, more French graduates (80%) than other master's graduates (65%) considered themselves over-qualified for their present job. In keeping with the slightly worse-than-average labour market transition and low level of job satisfaction, only about 55% of the graduates, compared with 80% of all master's graduates, indicated that they would follow the same educational route if they had to make this choice again.

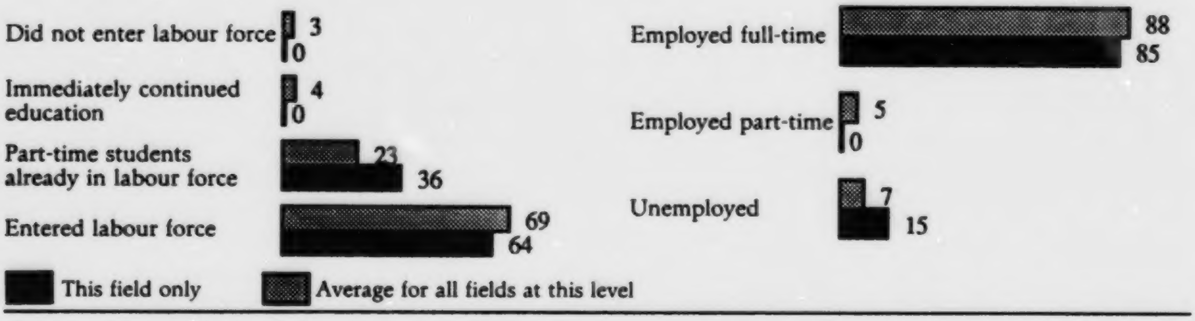
French

Doctorate
University (5 years)

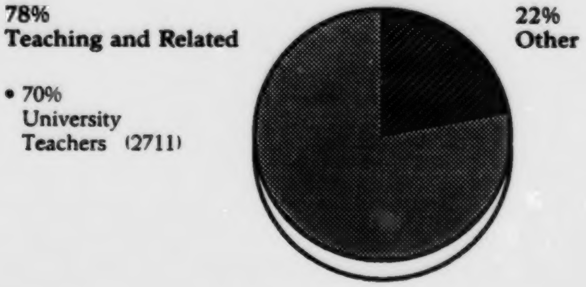
Graduate Trends and Projections

	1971	1981	1985	1986	1995
Number of Graduates	14	34	34	35	35
% of Total Doctorate Graduates	0.9	1.9	1.7	1.7	1.7

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation



French

Doctorate
University (5 years)

The minimum qualification necessary for entrance to this course of study is a master's degree or the equivalent. The course includes programs in French language and French literature, and is usually five years in length. It is offered in Quebec, Ontario, Manitoba, Alberta and British Columbia. The representation of women in the course is almost double the average for all doctorate courses. The proportion of graduates who were enrolled part-time during the last semester before graduation as well as the average age of PhD graduates in French are higher than in other doctoral courses.

Graduate Trends and Projections

Between 1971 and 1981, the number of graduates from this field of study more than doubled, rising from 14 to 34. Annual averages indicate that the relative popularity of the program increased between 1971 and 1981, but has held fairly constant since that time. If the current popularity of this course and the capacity of faculties to absorb new students hold over the 1987 to 1995 period, about 50 students should graduate from this course per year.

Destination of Graduates

All 1982 PhD graduates in French looked for work following graduation, but not all found jobs. In fact, only 85% found full-time employment; the rest remained unemployed. The unemployment rate for the course of study is therefore more than twice the rate for the whole PhD level. No graduates were employed on a part-time basis.

Occupations

According to 1984 data, the majority of graduates who were employed full-time were working in teaching occupations, mostly as university teachers.

The Course in Retrospect

Most of the PhD graduates in French who were employed full-time were satisfied with their current job, and a lower-than-average proportion of them thought they were over-qualified for their current job. Their perception of the correspondence between their job and the field of study, however, was not as favourable as in other fields. A significantly higher-than-average proportion of graduates reported that they would make the same educational choice if they had to decide again.

History

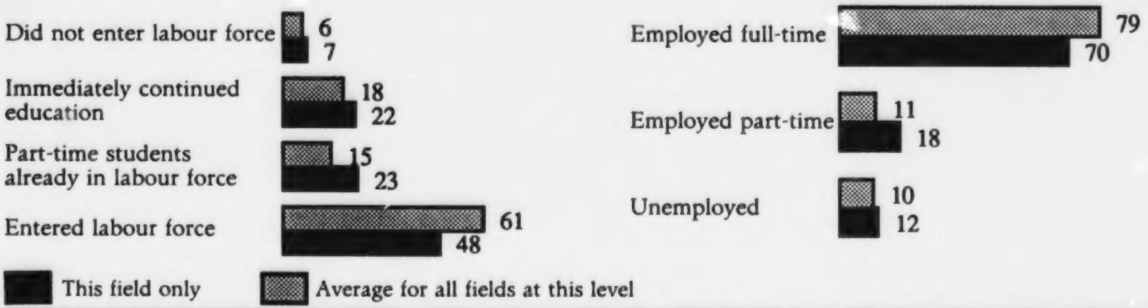
Humanities

Undergraduate
University (3 years)

Graduate Trends and Projections

	1971	1981	1985	1986	1995
Number of Graduates	2,556	1,885	1,956	2,065	2,010
% of Total Undergraduate Degrees	3.5	1.9	1.7	1.7	1.8

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation

18%
Teaching and Related

- 10%
  Elementary and Kindergarten Teachers (2731)

16%
Social Sciences and Related Fields

15%
Clerical and Related

51%
Other

Humanities

History

Undergraduate
University (3 years)

This field of study includes programs in such areas as European history, mediaeval history or North American history. Applicants to the field must meet the general requirement, a high-school diploma with good standing in English (French), humanities and social sciences. Quebec students applying to a Quebec university must have completed the Diploma of Collegial Studies. The bachelor's program, which usually takes between three and four years, is offered in all provinces. A minor or certificate in History is also offered by some institutions. The average duration of these programs is three years.

Graduate Trends and Projections

Since 1981, an average of about 1,900 students have graduated annually in History at this level, a much smaller number than during the 1970s, owing to the declining popularity of this course. In fact, the relative popularity of the field, expressed in terms of its share of all undergraduate qualifications awarded, decreased by 50% between 1971 and 1985. If the current popularity of this course and the capacity of relevant faculties to absorb new students hold over the 1987 to 1995 period, some 2,100 students should graduate from this course per year.

Destination of Graduates

Overall, the number of undergraduates in History who entered the labour force was lower than in other fields, even considering the larger proportion of persons enrolled on a part-time basis. A significant number decided to further their education rather than seek employment. Of those who looked for work, a less-than-average percentage found full-time jobs; others settled, either by design or circumstance, for part-time employment.

Occupations

Most of the graduates who found full-time jobs were working in occupations related to teaching, (for example, as elementary and kindergarten teachers), the social sciences (as historians) and clerical work. Graduates working in the teaching field must compete with graduates of elementary/secondary teacher training programs as well as with holders of master's and doctorate degrees in History.

The Course in Retrospect

The less-than-favourable labour market outcome of History undergraduates influenced, to some extent, their view of the course. In a proportion larger than in other fields, History graduates reported that their current job was not related to their program of study and that they considered themselves over-qualified for their job. Similarly, they were less likely than graduates from other fields to be satisfied with their job. Graduates in History at the master's and doctorate levels reported a much higher level of satisfaction than bachelor's degree holders.

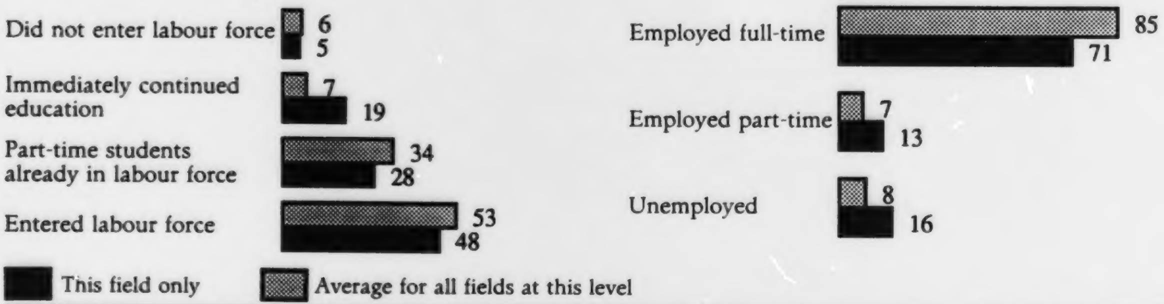
History

Master's
University (2 years)

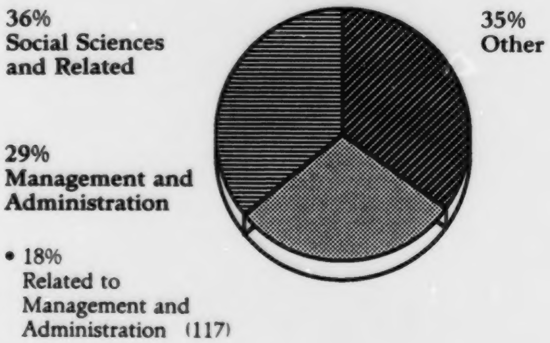
Graduate Trends and Projections

	1971	1981	1985	1986	1995
Number of Graduates	283	237	237	235	210
% of Total Master's Graduates	2.7	1.7	1.4	1.4	1.4

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation



Humanities

History

Master's
University (2 years)

At the master's level, this field of study includes programs in such areas as ancient history, mediaeval history and modern history. The program prerequisites vary by institution, but in general, candidates must have an honours undergraduate degree or the equivalent in this or a closely related field of study from a recognized university. As mentioned in the introduction, holders of graduate diplomas and certificates are included with master's graduates. The diploma or certificate programs are generally shorter than the master's course and may be taken following either an undergraduate or a master's degree. All of the 1985 graduates of this course received degrees rather than certificates or diplomas. The master's course is offered in all provinces except Prince Edward Island and usually takes two years, depending on the institution. At some universities, it is possible to graduate through involvement in a CO-OP program, although according to 1984 data, only about 5% of History graduates received their master's degree in this manner. The majority of graduates were men (55%) and were concentrated in Quebec (35%).

Graduate Trends and Projections

Enrollments, and therefore graduations, depend on the capacity of the specific faculty to absorb new students and on the demand for entrance. Both these factors are influenced, in part, by the current and anticipated labour market situation. Since 1981, the annual number of graduates has averaged 225. The popularity of this course, as indicated by its share of all master's graduates, declined from 2.7% in 1971 to 1.4% in 1985. If the relative popularity of this course, and faculty capacities hold over the 1987 to 1995 period, 200 students should graduate from this course per year. The number of new graduates competing for related employment is therefore expected to be about the same over the projection period as it was between 1981 and 1985.

Destination of Graduates

The relatively small proportion of graduates who entered the labour force upon completion of their degree (50%) is largely a function of the greater-than-average proportion who immediately continued their education (20%). The success of graduates who looked for employment was lower than the average for all master's fields of study, and is reflected in the significantly higher-than-average unemployment rate (15%) for this field of study and in the lower-than-average proportion of graduates who were employed full-time (70%).

Occupations

The majority of History master's graduates working full-time two years after graduation were employed in social science occupations (historians are included in this group) and in the education industry. The remainder were employed in a variety of other occupations, particularly in management and administration.

The Course in Retrospect

Not only was the transition from school into the labour market significantly more difficult for these graduates than for other master's graduates, but also fewer graduates thought their job was related to the field of study, and more believed they were over-qualified for their job. A significantly lower-than-average proportion of History graduates stated they would select the same course if they had to choose again.

History

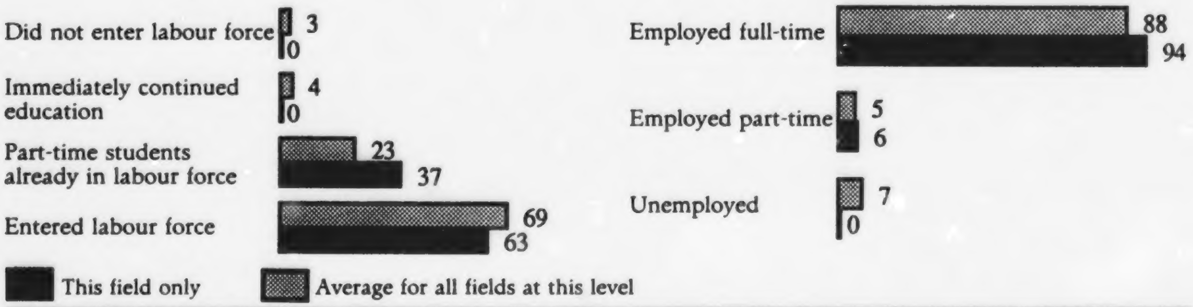
Humanities

Doctorate
University (5 years)

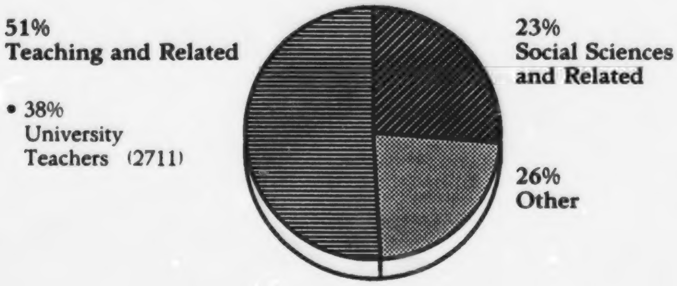
Graduate Trends and Projections

	1971	1981	1985	1986	1995
Number of Graduates	37	39	44	45	50
% of Total Doctorate Graduates	2.3	2.1	2.2	2.2	2.2

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation



Humanities

History

Doctorate
University (5 years)

Graduate students from a recognized university who have been awarded their master's degree or the equivalent are usually the applicants for this program. Areas of specialization include modern history, mediaeval history, ancient history, Canadian history and African history. Doctorate students generally complete the program in five years, although this varies according to the institution and the province. According to 1984 data, more than 30% of the graduates had been enrolled on a part-time basis. The representation of women in the course was higher than in others. All provinces except Newfoundland and Prince Edward Island offer a doctoral program in History.

Graduate Trends and Projections

The popularity of this course of study, relative to other doctorate programs, has not changed significantly since 1971. Based on an annual average for the periods 1971 to 1981 and 1981 to 1986, the percentage of PhD degrees in History decreased slightly from 2.6% to 2.2% of all doctorate degrees awarded. If the current popularity of this course and the capacity of relevant faculties to absorb new students hold over the 1987 to 1995 period, about 50 students should graduate from this course per year. The number of new graduates competing for related employment is therefore expected to be about the same over the projection period as it was from 1981 to 1985.

Destination of Graduates

All graduates in History at this level entered the labour force upon completion of their degree. A significantly higher-than-average proportion found full-time work, while the remainder were able to get part-time jobs. This indicates a better employment outcome than is average for this level.

Occupations

According to 1984 data, half of the graduates who were working full-time were employed in the teaching field, particularly as university teachers. Others had found work in the social sciences, under which classification historians fall. The remainder were employed in a variety of other occupations.

The Course in Retrospect

All the graduates working full-time thought their job was related to their field of study, and an average proportion were satisfied with their job. However, half the graduates thought that they had more education than was required by the job, which is a significantly higher proportion than average for this level. An average proportion of graduates stated they would select the same educational program if they had to make that decision again.

Library and Records Science

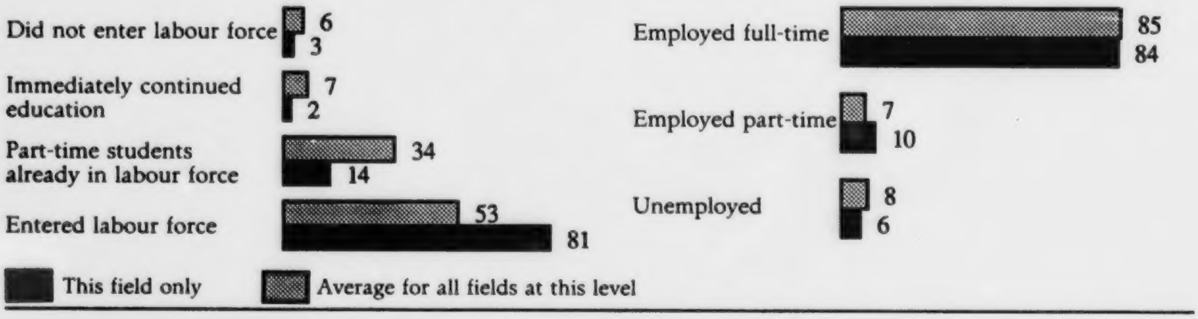
Humanities

Master's
University (2 years)

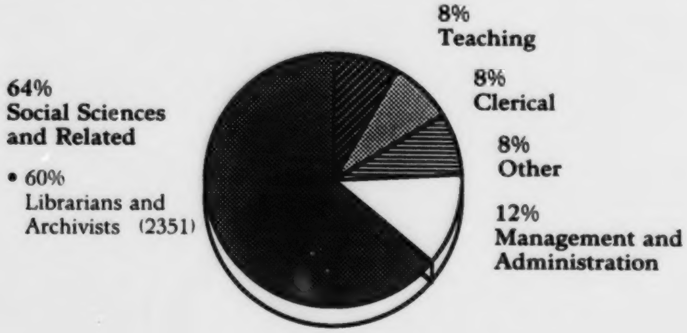
Graduate Trends and Projections

	1971	1981	1985	1986	1995
Number of Graduates	351	527	461	455	410
% of Total Master's Graduates	3.3	3.7	2.8	2.8	2.8

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation



Humanities

Library and Records Science

Master's
University (2 years)

The Library and Records Science field of study includes such areas of study as medical records science, archive maintenance, museology, art gallery administration and museum curatorship, in addition to Library Science. The prerequisites for entrance into the field vary by institution, but in general, candidates must have an honours undergraduate degree, or the equivalent, in this or a closely related field of study from a recognized university. As mentioned in the introduction, holders of graduate diplomas and certificates are included with master's graduates. The diploma or certificate programs are generally shorter than the master's course and may be taken following either an undergraduate or a master's degree. All the 1985 graduates in this course of study received degrees rather than certificates or diplomas. The course is offered in all provinces except Newfoundland, Prince Edward Island, New Brunswick, Manitoba and Saskatchewan and usually takes two years, depending on the institution. At some universities, it is possible to graduate through involvement in a CO-OP program. According to 1984 data, roughly 10% of Library and Records Science graduates received their degree in this manner. The majority of graduates were women (80%) and were concentrated in Ontario (40%).

Graduate Trends and Projections

Enrollments, and therefore graduations, depend on the capacity of the specific faculty to absorb new students and on the demand for entrance. Both these factors are influenced, in part, by the current and anticipated labour market situation. Since 1981, the annual number of graduates has averaged 475. The popularity of this course, as indicated by its share of all master's graduates, increased slightly between 1971 and 1981, but has since declined to the 1971 level. If the course's current popularity and faculty capacities hold over the 1987 to 1995 period, 400 students should graduate from this course per year. The number of new graduates competing for related employment is therefore expected to be lower over the projection period than it was over the 1981 to 1985 period.

Destination of Graduates

The relatively large proportion of graduates who entered the labour force upon completion of their master's degree (80%) is largely a function of the significantly lower-than-average proportion who chose to continue their education. The success of graduates who looked for employment was better than the average for all master's fields of study, which is apparent in their slightly lower-than-average unemployment rate (6%).

Occupations

The majority of Library and Records Science graduates who were working full-time two years after graduation were employed as librarians and archivists in the education industry. The remainder had jobs in various other occupations, particularly in management and administration, teaching and clerical occupations.

The Course in Retrospect

A 1984 survey indicated that not only was the transition from school to work more successful for 1982 graduates in this field than for other master's graduates, but also their degree of satisfaction with the jobs they found was better than average. The survey also indicated that a slightly greater-than-average proportion thought their job matched the field of study and were satisfied with their job. Fewer Library and Records Science graduates (25%) than other master's graduates (65%) thought that they possessed more qualifications than their job required. In keeping with their more successful labour market transition and higher level of job satisfaction, approximately 85% of the graduates, compared with 80% of all master's graduates, indicated that they would follow the same educational route if they had to make this choice again.

Linguistics, Translation and Interpretation

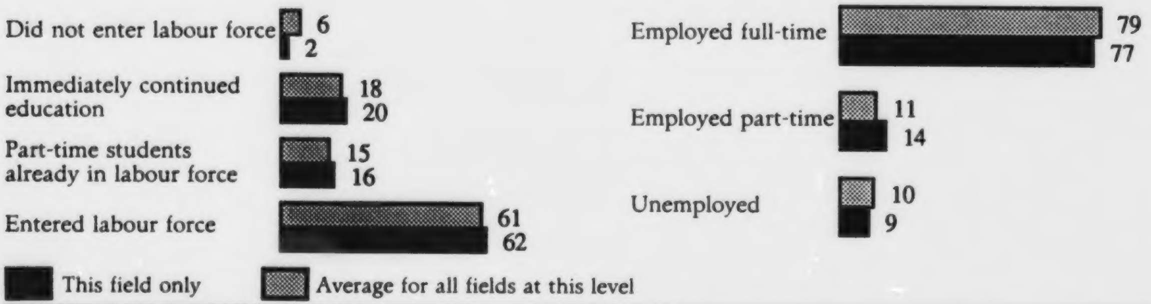
Humanities

Undergraduate
University (3 years)

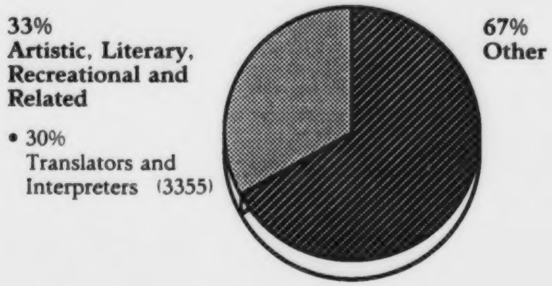
Graduate Trends and Projections

	1971	1981	1985	1986	1995
Number of Graduates	123	724	809	840	800
% of Total Undergraduate Graduates	0.2	0.7	0.7	0.7	0.7

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation



Humanities

Linguistics, Translation and Interpretation

Undergraduate
University (3 years)

The title of this field of study lists the three disciplines it covers. Students wishing to enroll in one of these programs must have a high-school diploma (or a Diploma of Collegial Studies, if they are from Quebec and are applying to a Quebec institution). Good standing in courses related to English, French and philosophy are an asset. The programs in this field of study are available in all provinces except Prince Edward Island and Nova Scotia. Some institutions offer the possibility of taking the course of study through a CO-OP program. Women are the predominant group in this field; in 1985, they represented 85% of the graduating class.

Graduate Trends and Projections

The number of graduates in this field has followed an upward path since 1971, increasing sixfold between 1971 and 1985. During the first half of the 1980s, an average of 800 students graduated each year. If the current popularity of this course and the capacity of relevant faculties to absorb new students hold over the 1987 to 1995 period, 800 students should graduate from this course per year. The number of new graduates competing for related employment is expected to be about the same over the projection period as it was over the 1981 to 1985 period.

Destination of Graduates

A survey of 1982 graduates indicated that an average proportion (20%) continued their education after obtaining their degree. Almost all other graduates entered the labour force. Those who looked for jobs had average success; only 9% remained unemployed two years after graduation.

Occupations

Approximately 30% of the 1982 graduates from this field of study found work as translators and interpreters. Other graduates were employed in many other occupations, but were not concentrated in any one of them. Graduates from this field are in competition for jobs with holders of a master's degree in this field of study and with graduates from the French or Other Languages fields of study.

The Course in Retrospect

The labour market situation was less than favourable for these graduates than other undergraduates, since only 30% of those who were working were employed as translators and interpreters. The graduates also reported a weaker correspondence between the program of study and their work and were significantly less satisfied with their jobs than graduates from other fields. Similarly, graduates from this field were more likely to consider themselves over-qualified for their jobs. These statistics may explain why only about 50% of the graduates, compared with 70% of all undergraduates, stated they would be ready to take the same program if they had to make that choice again.

Linguistics, Translation and Interpretation

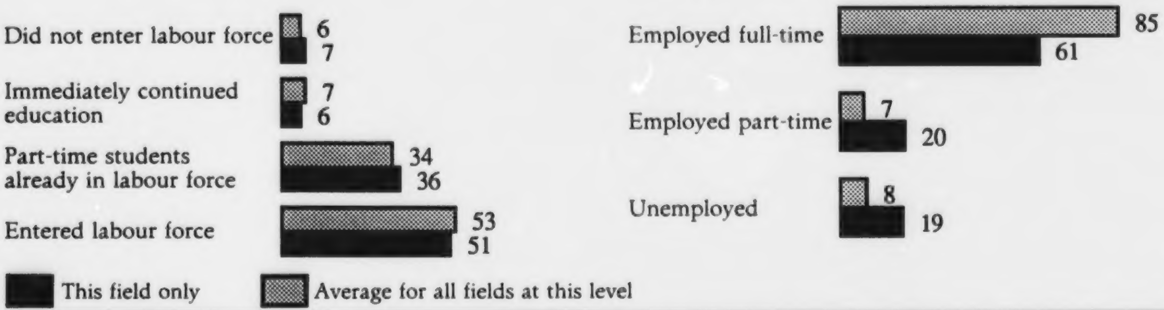
Humanities

Master's
University (2 years)

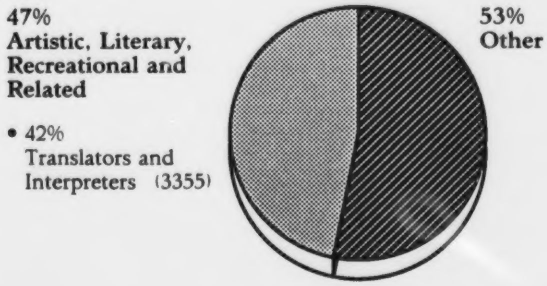
Graduate Trends and Projections

	1971	1981	1985	1986	1995
Number of Graduates	59	124	143	140	130
% of Total Master's Graduates	0.6	0.9	0.9	0.9	0.9

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation



Linguistics, Translation and Interpretation

Master's
University (2 years)

The prerequisites for entrance into this field of study vary according to institution, but in general, candidates must have an honours undergraduate degree, or the equivalent, in this or a closely related field of study from a recognized university. As mentioned in the introduction, holders of graduate diplomas and certificates are included with master's graduates. The diploma or certificate programs are generally shorter than the master's course and may be taken following either an undergraduate or a master's degree. About 10% of the 1985 figure shown on the opposite page is attributable to graduate diplomas or certificates. The master's course is offered in all provinces except Prince Edward Island, Nova Scotia, New Brunswick, Manitoba and Saskatchewan and usually takes two years, depending on the institution. At some universities, students may graduate through involvement in a CO-OP education program, although according to 1984 data, only about 5% of the graduates in this field received their qualification in this manner. The majority of graduates were women (65%) and were concentrated in Quebec (85%).

Graduate Trends and Projections

Enrollments, and therefore graduations, depend on the capacity of the specific faculty to absorb new students and on the demand for entrance. Both these factors are influenced, in part, by the current and anticipated labour market situation. Since 1981, the annual number of graduates has averaged 125. The popularity of this course, as indicated by the proportion of all master's graduates, increased slightly between 1971 and 1981, but has since remained constant. If the course's current popularity and faculty capacities hold over the 1987 to 1995 period, 130 students should graduate from this course per year. The number of new graduates competing for related employment is therefore expected to remain about the same over the projection period as it was over the 1981 to 1985 period.

Destination of Graduates

Upon graduation, an average proportion of graduates became first-time labour force entrants; 35% were already in the labour force and had been attending school part-time. The success of graduates who looked for employment was significantly lower than for other master's graduates, and a significantly greater-than-average proportion of graduates were only able, either by design or circumstance, to find part-time employment.

Occupations

Most of the graduates working full-time two years after graduation were employed as translators and interpreters. The remainder had jobs in various other occupations, but were not concentrated in any one. Graduates of this course who seek employment face competition primarily from graduates with an undergraduate qualification in this field.

The Course in Retrospect

A 1984 survey indicated that not only was the transition from school to work much less successful for 1982 graduates in this course of study than for other master's graduates, but also about 65% of the graduates reported that they possessed more qualifications than their current job required. The survey further revealed the graduates' negative opinions; a significantly greater-than-average proportion stated that their job did not match the field of study and that they were dissatisfied with their job. In keeping with their apparently unsuccessful labour market transition and lower-than-average level of job satisfaction, approximately 75% of the graduates, compared with 80% of all master's graduates, indicated they would follow the same educational route if they had to make this choice again.

Mass Communication

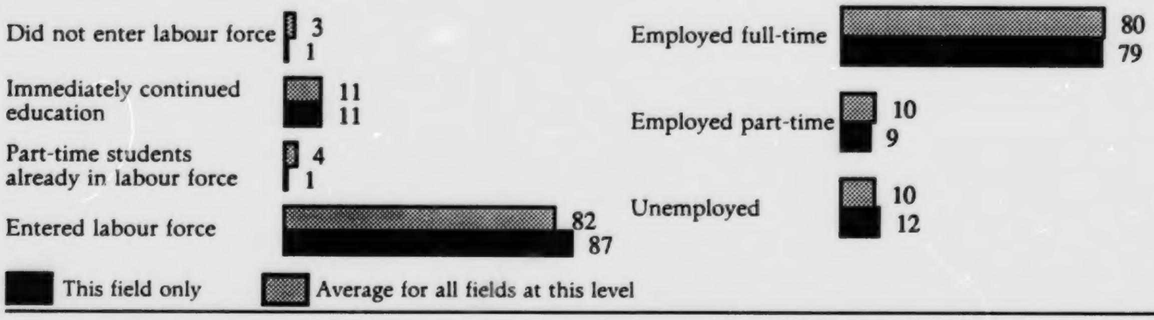
Humanities

Career Program
Community College (2 years)

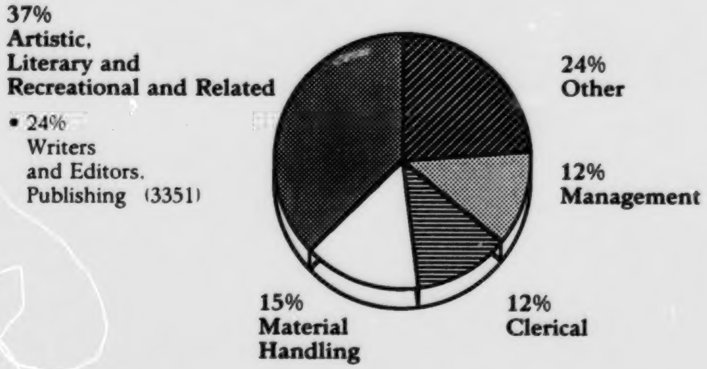
Graduate Trends and Projections

	1977	1981	1985	1986	1995
Number of Graduates	722	968	1,208	1,225	1,150
% of Total Community College Graduates	1.9	2.1	2.1	2.1	2.1

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation



Humanities

Mass Communication

Career Program
Community College (2 years)

This field of study includes programs in such areas as cinematography/film production/animation, radio and television broadcasting and journalism. The entrance prerequisites for this field of study vary by institution, but in general, candidates must pass an interview, present a letter of recommendation and samples of work, take a diagnostic English (French) test and have completed Grade 12 English (French) courses. Although not required, courses in history, politics and geography at the high-school level are highly recommended. The course of study is offered in all provinces except Nova Scotia and Saskatchewan and usually lasts two years, depending on the institution. An equal number of men and women study in this field, and the majority are concentrated in the province of Ontario. In some institutions, it is possible to take this course through a CO-OP program. According to 1984 data, roughly 10% of the graduates in Mass Communication obtained their certificate or diploma in this manner.

Graduate Trends and Projections

Enrollments, and therefore graduations, depend on the capacity of the specific faculty to absorb new students and on the demand for entrance. Both these factors are partly influenced by the current and anticipated labour market situation. Since 1981, the annual number of graduates has averaged 1,150. The popularity of this course, as indicated by its share of all community college graduates, remained fairly stable between 1977 and 1985. If the course's current popularity and faculty capacities hold over the 1987 to 1995 period, about 1,200 students should graduate from this course per year. The number of new graduates competing for related employment is therefore expected to be about the same over the projection period as it was between 1981 and 1985.

Destination of Graduates

Upon graduation, a proportion of graduates equal to that in other college fields entered the labour force. However, the proportion of graduates who were unable to find a job was slightly higher than for other fields of study. The number of graduates who found full-time employment was slightly higher than the average for all fields of study. Of the graduates who did not enter the labour force, an average proportion (11%) continued their education.

Occupations

Most Mass Communication graduates working full-time two years after graduation were employed as writers or editors in the telecommunication broadcasting and the printing and publishing industries. Other employed graduates had jobs in many different occupations, particularly in management and clerical occupations. Graduates of this course who seek employment as writers or editors face competition primarily from university graduates with a bachelor's degree in journalism.

The Course in Retrospect

In general, Mass Communication graduates were not as satisfied with their labour market outcome as other college graduates. This is indicated by the lower-than-average proportion who reported that their current employment matched the field of study and were satisfied with their job. Further, approximately one-half of all employed Mass Communications graduates considered themselves over-qualified for their present job. Although their transition from school to work did not prove to be smooth, an average proportion of the graduates stated they would still select the same course if they had to make the decision again.

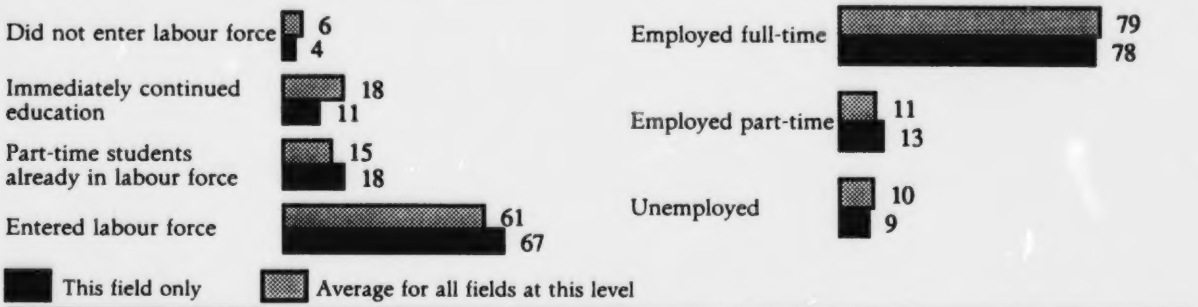
Mass Communication

Undergraduate
University (3 years)

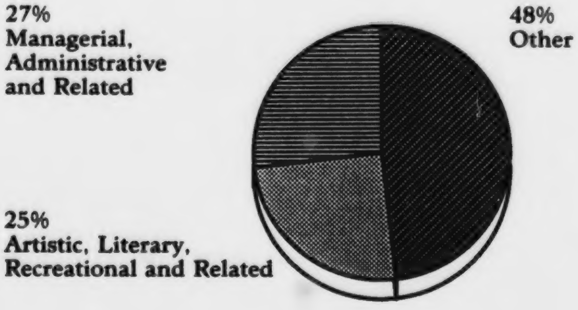
Graduate Trends and Projections

	1971	1981	1985	1986	1995
Number of Graduates	89	752	1.127	1.175	1.120
% of Total Undergraduate Degrees	0.1	0.8	1.0	1.0	1.0

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation



Mass Communication

Undergraduate
University (3 years)

At this level, Mass Communication covers programs in such areas as cinematography, film, radio/television broadcasting and public relations. Applicants to these programs are generally required to have a high-school diploma (or a Diploma of Collegial Studies for Quebec students applying to a Quebec institution), and they may have to present a portfolio of their work and pass an interview before being admitted. Good standing in English, French and social sciences courses are assets. All provinces except Newfoundland and Prince Edward Island provide a program of study related to Mass Communication that leads to a certificate, diploma or degree in this area. Generally, graduates take approximately three years to complete the program, depending on the province and the qualification sought. In 1985, women represented about 55% of the graduates from this field.

Graduate Trends and Projections

The number of graduates from this course of study has been steadily increasing over the past 16 years. Since 1981, the average annual number has approximated 1,000, more than twice the annual average witnessed during the 1970s. Mass Communication has become an increasingly popular program, and now accounts for about 1% of all graduates at this level. If the current popularity of this course and the capacity of relevant faculties to absorb new students hold over the 1987 to 1995 period, 1,200 students should graduate from this course per year.

Destination of Graduates

Fewer of the graduates from this field than other fields of study at this level continued their education; the majority entered the labour force. Of those who looked for work, 90% found either full-time or part-time jobs, while the rest remained unemployed. These results are comparable to those for other fields at this level.

Occupations

A 1984 survey of graduates indicated that half of those employed full-time were working in occupations related to management or administration and literary and performing arts, as writers, editors, producers or directors. Other graduates were employed in many different occupations, but were not concentrated in any one of them. This occupational information suggests that graduates from this field face competition from other university and college graduates in journalism, literature and other related communication studies.

The Course in Retrospect

In spite of the average unemployment rate for graduates in Mass Communication, their labour market situation was less than favourable. Two years after graduation, a smaller-than-average percentage found their job was related to the program of study. They were less satisfied with their job than other graduates, and more than half of them considered themselves over-qualified for their job. Overall, the graduates were less enthusiastic about their field of study than graduates in other fields and only about 55% said they would make the same educational choice if they had to select a program of study again.

Religious and Theological Studies

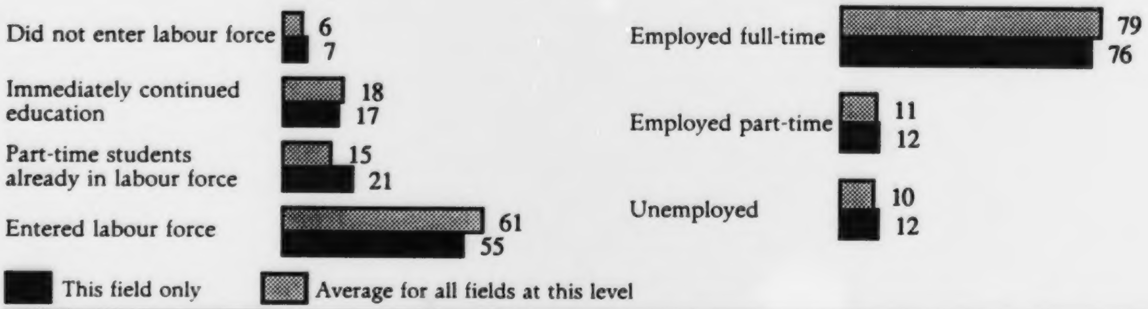
Humanities

Undergraduate
University (3 years)

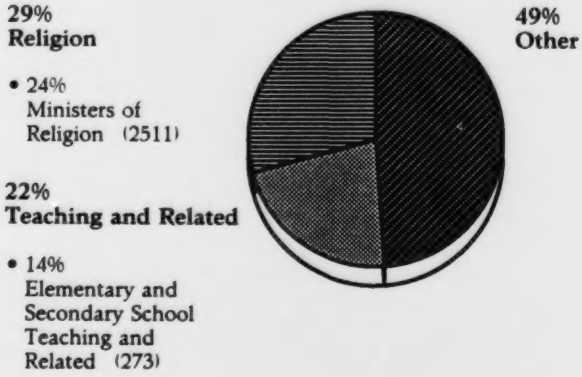
Graduate Trends and Projections

	1971	1981	1985	1986	1995
Number of Graduates	997	1,300	1,528	1,590	1,500
% of Total Undergraduate Degrees	1.4	1.3	1.3	1.3	1.3

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation



Religious and Theological Studies

Undergraduate
University (3 years)

University programs such as comparative religious studies, canon law, history of religion, theology and pastoral theology are included in this field of study. Individuals seeking admission to one of these programs must have a high-school diploma (or a Diploma of Collegial Studies for Quebec students applying to a Quebec institution) with emphasis in humanities and social sciences courses. All provinces offer programs leading to a certificate, diploma or bachelor's degree. The course of study takes an average of three years to complete, and at some institutions is available in the form of a CO-OP program. The students in this field of study are often mature students who enroll on a part-time basis. As many women as men graduate from these programs each year.

Graduate Trends and Projections

Since 1981, close to 1,500 persons have graduated each year in Religious and Theological Studies. This is approximately 50% higher than the average annual number of graduates for the 1970s. This upward trend is reflected by a rise in the relative popularity of the field, which now accounts for 1.3% of all undergraduate qualifications awarded. If the current popularity of this course and the capacity of relevant faculties to absorb new students hold over the 1987 to 1995 period, 1,600 students per year should graduate from this field of study.

Destination of Graduates

According to 1984 data, a larger-than-average proportion of graduates were enrolled on a part-time basis and may also have been working. A dramatically greater-than-average proportion of them entered the labour force upon completion of their program, and those who looked for work were generally as successful as other graduates.

Occupations

Two years after obtaining their degree, 30% of the graduates working full-time were employed in occupations in religion, especially as ministers of religion. Another significant number had found work in the teaching field. For positions such as ministers of religion, graduates in this field must compete with other graduates in Religious and Theological Studies at the master's and doctorate levels.

The Course in Retrospect

Although a slightly greater-than-average proportion of graduates in Religious and Theological Studies considered themselves over-qualified for their current job, the majority reported that their job was related to the course of study. They also reported a significantly higher-than-average level of job satisfaction, which partly explains why they were more likely than other graduates to state that they would repeat their educational choice if they had to make that decision again. The labour market outcome of graduates at the master's and doctorate levels was not drastically different.

Religious and Theological Studies

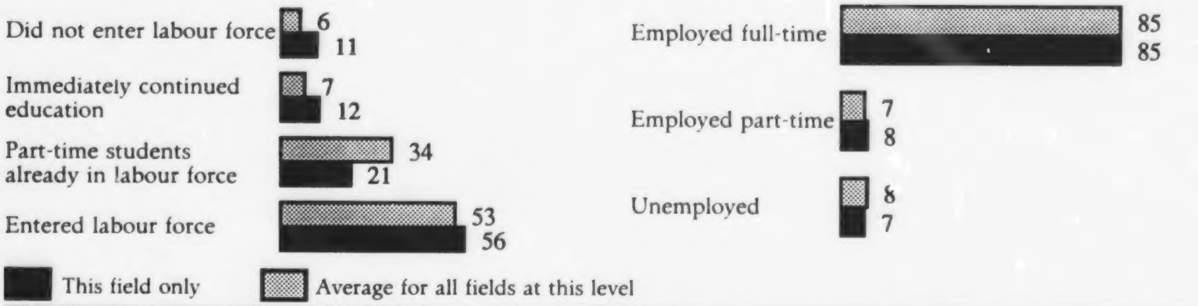
Humanities

Master's
University (2 years)

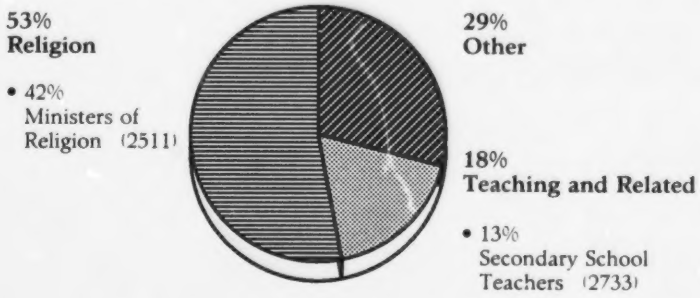
Graduate Trends and Projections

	1971	1981	1985	1986	1995
Number of Graduates	377	211	352	345	315
% of Total Master's Graduates	3.6	1.5	2.1	2.1	2.1

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation



Religious and Theological Studies

Master's
University (2 years)

This field of study includes programs in such areas as comparative religion, canon law, pastoral theology, practical theology and systematic theology. The entrance prerequisites vary by institution, but in general, candidates must have an honours undergraduate degree, or the equivalent, in this or a closely related field of study from a recognized university. As mentioned in the introduction, holders of graduate diplomas and certificates are included with master's graduates. The diploma or certificate programs are generally shorter than the master's course and may be taken following either an undergraduate or a master's degree. Only about 5% of the 1985 figure shown on the opposite page is attributable to graduate diplomas and certificates. The master's course is offered in all provinces except Newfoundland, Prince Edward Island and New Brunswick and generally takes two years, depending on the institution. At some institutions it is possible to graduate through involvement in a CO-OP education program, although according to 1984 data, only about 5% of the graduates in this field received their qualification in this manner. The majority of graduates were men (65%) and were concentrated in Ontario (50%).

Graduate Trends and Projections

Enrollments, and therefore graduations, depend on the capacity of the specific faculty to absorb new students and on the demand for entrance. Both these factors are influenced, in part, by the current and anticipated labour market situation. Since 1981, the annual number of graduates has averaged 300. The popularity of this course, as indicated by its share of all master's graduates, declined significantly between 1971 and 1981, but has since begun to rise. If the course's current popularity and faculty capacities hold over the 1987 to 1995 period, 300 students should graduate from this course per year.

Destination of Graduates

Religious and Theological graduates behaved differently upon graduation than the majority of other master's graduates, in that fewer decided to continue their education and more chose to enter the work force. Of those who looked for work, an average proportion found either full- or part-time employment.

Occupations

Most Religious and Theological graduates working full-time two years after graduation were employed as ministers of religion or secondary school teachers. The remainder were employed in various other occupations, particularly in other religious and teaching occupations. Graduates of this course who seek employment face competition primarily from university graduates with an undergraduate qualification in this field of study.

The Course in Retrospect

A 1984 survey indicated that although the transition from school to work was about the same for 1982 graduates in this field as for other master's graduates, a significantly lower-than-average proportion of them thought they possessed more qualifications than their current job required. The survey further indicated that in spite of the lower-than-average proportion who thought their job matched the field of study, a greater-than-average proportion were satisfied with their job. Consistent with this apparently successful labour market transition and higher-than-average level of job satisfaction, approximately 85% of the graduates, compared with 80% of all master's graduates, indicated that they would follow the same educational route if they had to make this choice again.

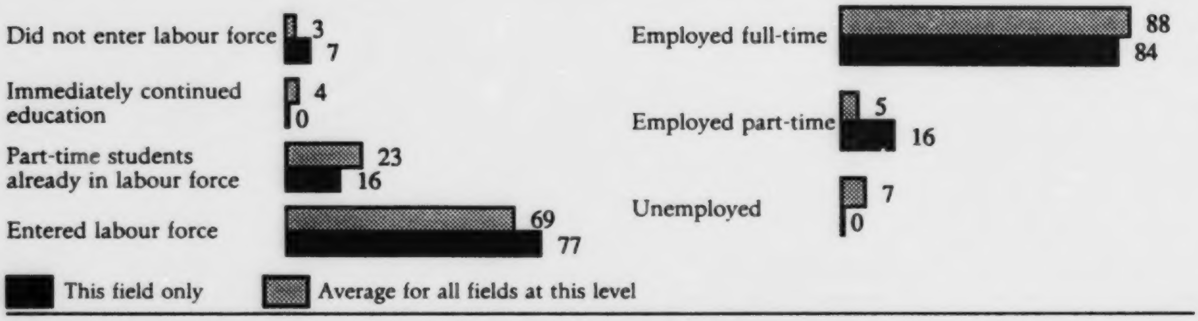
Religious and Theological Studies

Doctorate
University (4 years)

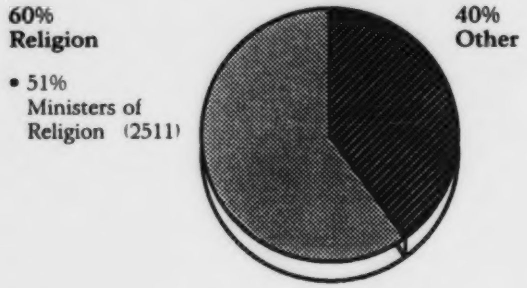
Graduate Trends and Projections

	1971	1981	1985	1986	1995
Number of Graduates	14	24	18	20	20
% of Total Doctorate Graduates	0.9	1.3	0.9	0.9	0.9

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation



Religious and Theological Studies

Doctorate
University (4 years)

This field of study covers such areas of specialization as comparative religion, canon law, practical theology and pastoral theology. Applicants must have a master's degree or the equivalent with high standings in related fields. The program generally takes four years and is offered in only four provinces (Quebec, Ontario, Alberta and British Columbia). At some institutions it is possible to obtain the qualification through involvement in a CO-OP program, where the student spends part of the year in school and part in the labour force. This option is more popular in this field of study than in others. The representation of women in the field is marginally lower than in other PhD programs. According to 1984 data, they formed 25% of the graduates in this course of study.

Graduate Trends and Projections

Over the years, the number of graduates has remained fairly constant, and the relative popularity of the field varied only slightly between 1971 and 1986. If the current popularity of this course and the capacity of relevant faculties to absorb new students hold over the 1987 to 1995 period, about 20 students per year should graduate in Religious and Theological Studies at this level. The number of new graduates competing for related employment is therefore expected to be about the same over the projection period as it was between 1981 and 1985.

Destination of Graduates

The majority of graduates from this program entered the labour force upon completion of their degree. They were less likely than others to find full-time jobs; however, none remained unemployed, but rather secured part-time employment.

Occupations

Of the graduates employed full-time, 60% were in occupations related to Religion. The majority of these described their occupation as minister of religion. The other graduates were working in many differenct occupations.

The Course in Retrospect

All graduates from this program found their job was related to the field of study and were satisfied with the type of work they were doing. However, a dramatically greater-than-average proportion of them thought they had more education than their present job required. An average proportion of graduates reported that they would choose the same field of study if they had to make the choice again.

Basic Medical Sciences

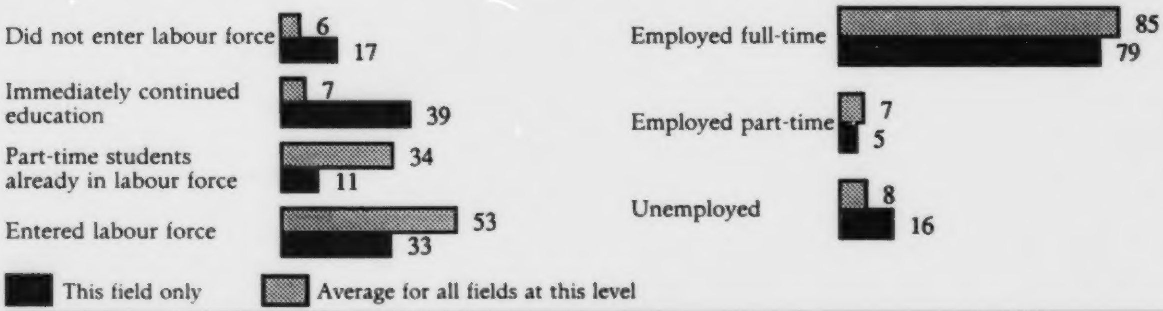
Medicine and Health

Master's
University (2 years)

Graduate Trends and Projections

	1971	1981	1985	1986	1995
Number of Graduates	98	137	204	200	180
% of Total Master's Graduates	0.9	1.0	1.2	1.2	1.2

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation

**36%
Medicine
and Health**

- 14%
  Physicians and Surgeons (3111)
- 10%
  Medical Laboratory Technologists and Technicians (3156)

**33%
Teaching and
Related**

- 20%
  University Teachers (2711)
- 11%
  University Teachers and Related (2719)

**17%
Natural Sciences,
Engineering and
Mathematics**

- 10%
  Physical Sciences (211)

**14%
Other**

Medicine and Health

Basic Medical Sciences

Master's
University (2 years)

This field of study includes programs in such areas as anatomy, biochemistry, biophysics, embryology, endocrinology, genetics, pharmacology and physiology. The prerequisites for entrance into this field of study vary by institution, but in general, candidates must have an honours undergraduate degree, or the equivalent, in this or a closely related field of study (for example, biology, chemistry, physics) from a recognized university. As mentioned in the introduction, holders of graduate diplomas and certificates are included with master's graduates. The diploma or certificate programs are generally shorter than the master's course and may be taken following either an undergraduate or a master's degree. All of the 1985 graduates received degrees rather than diplomas or certificates. The master's course is offered in all provinces except Prince Edward Island and usually takes two years, depending on the institution. At some universities, it is possible to graduate through involvement in a CO-OP program although, according to 1984 data, only about 5% of the graduates in this field received their qualification in this manner. The majority of graduates were men (60%) and were concentrated in Ontario (50%).

Graduate Trends and Projections

Enrollments, and therefore graduations, depend on the capacity of the specific faculty to absorb new students and on the demand for entrance. Both these factors are influenced, in part, by the current and anticipated labour market situation. Since 1981, the annual number of graduates has averaged 175. The popularity of this course, as indicated by its share of all master's graduates, rose slowly but consistently between 1971 and 1985. If the course's current popularity and faculty capacities hold over the 1987 to 1995 period, about 200 students should graduate from this course per year.

Destination of Graduates

Upon graduation, a dramatically lower-than-average proportion of graduates became first-time labour force entrants, while a dramatically greater-than-average proportion continued their education. The success of those who looked for employment was significantly worse than that of other master's graduates, which is seen in their 1984 unemployment rate of 16%.

Occupations

Most Basic Medical Sciences graduates who were working full-time two years after graduation were employed as university teachers or physicians and surgeons in universities or hospitals. The remainder were employed in various other occupations, particularly as medical laboratory technologists and technicians and in life science occupations. Graduates of this course who seek employment face competition primarily from other master's or doctorate graduates in this field of study or in fields such as medicine, biology, chemistry and physics.

The Course in Retrospect

A 1984 survey indicated that although the transition from school to work was significantly less successful for 1982 graduates in this field than for other master's graduates, a dramatically lower-than-average proportion thought that they possessed more qualifications than their current job required, and a greater-than-average proportion were satisfied with their current job. However, the high level of job satisfaction is counterbalanced by the lower-than-average annual salaries of these graduates. Only an average proportion of them indicated they would follow the same educational route if they had to make this choice again.

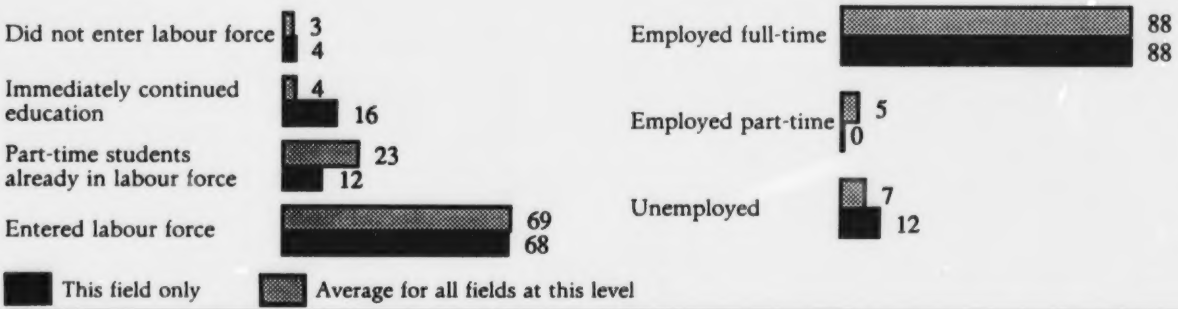
Basic Medical Sciences

Doctorate
University (4 years)

Graduate Trends and Projections

	1971	1981	1985	1986	1995
Number of Graduates	57	70	105	110	115
% of Total Doctorate Graduates	3.5	3.9	5.3	5.3	5.3

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation

55%
Teaching and Related

- 28% University Teachers (2711)
- 27% University Teachers and Related (2719)

28%
Medicine and Health

- 18% Physicians and Surgeons (3111)

14%
Natural Sciences, Engineering and Mathematics

3%
Other

Basic Medical Sciences

Doctorate
University (4 years)

The course of study discussed here includes such disciplines as biochemistry, biophysics, genetics, endocrinology, pharmacology and physiology. The admission requirement of these disciplines varies by institution and by province. Generally, applicants must have a master's degree in science (MSc), a MD, or an equivalent degree in a related field with high standing from a recognized university. They must also demonstrate good research ability. Doctorate programs in this field of study are offered in all provinces with the except Newfoundland, Prince Edward Island and New Brunswick. The average duration of the programs is four years, and the average age of graduates is 33. The number of women in the field has been increasing; their representation among graduates rose to 30% in 1985 from 9% in 1971.

Graduate Trends and Projections

The number of Basic Medical Science graduates almost doubled from 1971 to 1985. An annual average of 100 persons graduated from this field of study between 1981 and 1986. The field has been attracting an increasing number of students, as more than 5% of all PhD graduates originated in this field in 1985, compared with 4% in 1981. If the relative popularity of this course, and the capacity of relevant faculties to absorb new students hold over the 1987 to 1995 period, 120 students should graduate from this field of study per year.

Destination of Graduates

According to 1984 data, a greater-than-average proportion of graduates continued their education after obtaining their degree. Only 80% of the graduates entered the labour force, compared with 92% for the whole doctorate level. A greater-than-average proportion of graduates could not find a job, and none were employed part-time.

Occupations

As is the case for most PhD recipients, the majority of graduates in this field who were working full-time were employed in the teaching field, especially at the university level. Others were working in occupations related to medicine and health or natural sciences.

The Course in Retrospect

All the graduates from this program reported that their job was related to the course of study, and an average proportion stated they were satisfied with their current job. Graduates from this course were less likely than other doctorate graduates to think they were over-qualified for their job. A greater-than-average proportion indicated they would select the same course of study if they had to make that decision again.

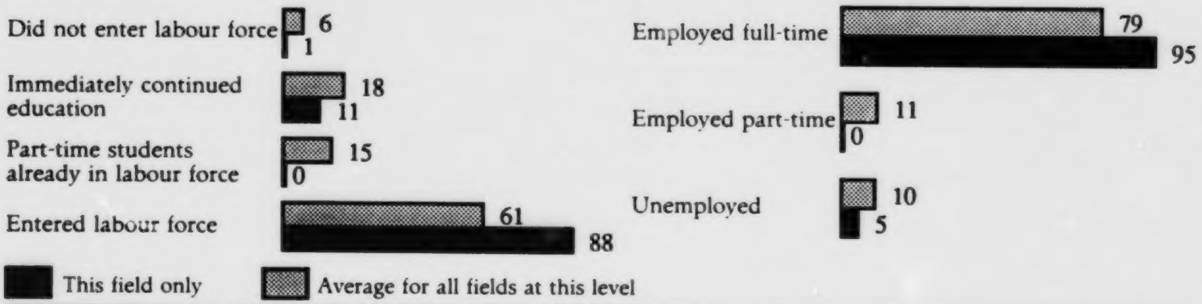
Dentistry

Undergraduate
University (4 years)

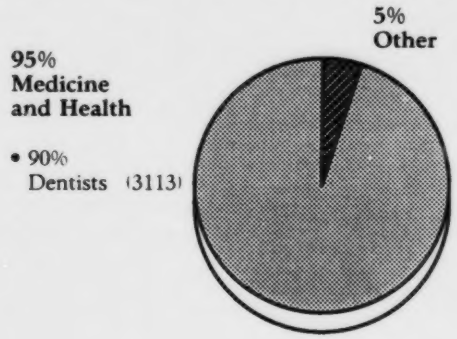
Graduate Trends and Projections

	1971	1981	1985	1986	1995
Number of Graduates	369	487	508	540	520
% of Total Undergraduate Degrees	0.5	0.5	0.4	0.5	0.5

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation



Medicine and Health

Dentistry

Undergraduate
University (4 years)

This field of study refers to the professional program in Dentistry as well as to dental specialties offered at the undergraduate level, such as dental surgery, dental hygiene, oral surgery and orthodontics. The minimum requirement for entrance to Dentistry is two years of university study covering courses in biology, chemistry, physics and mathematics. Quebec students applying to a Quebec faculty of Dentistry must have a Diploma of Collegial Studies. Applicants must also take the aptitude test of the Canadian Dental Association. The degree in Dentistry usually takes four years and is available in all provinces except Newfoundland, Prince Edward Island and New Brunswick. According to 1984 data, the average age of graduates in this course of study was 26. Most graduates were men; in 1985, women represented only about 25% of the graduating class.

Graduate Trends and Projections

Although the number of graduates in this field increased from 369 in 1971 to 508 in 1985, the number of degrees in Dentistry expressed as a percentage of all undergraduate qualifications awarded remained constant at 0.5% over these years. During the first half of the 1980s, an average of 510 persons graduated in Dentistry each year. If the current popularity of this course, and the capacity of individual faculties to absorb new students hold over the 1987 to 1995 period, 500 students should graduate from this course per year. The number of new graduates competing for related employment is therefore expected to remain about the same during the projection period as it was between 1981 and 1985.

Destination of Graduates

Most Dentistry graduates entered the labour force upon completion of their program (their rate of labour force participation was one of the highest at the undergraduate level). Only a small proportion of graduates chose to pursue their education. Those who looked for work were very successful in finding full-time employment; only a small number remained unemployed. Approximately 85% of the graduates who were working were in private practice (self-employed).

Occupations

A 1984 survey indicated that almost all 1982 Dentistry graduates were working as dentists. Since the majority of graduates start their own practice and are highly specialized, they do not have to compete for jobs with graduates from other fields.

The Course in Retrospect

In keeping with their favourable labour market outcome, the Dentistry graduates who were surveyed all agreed that their job was related to the course of study and that they were all satisfied with it. A significantly higher-than-average proportion of them stated they would make the same educational choice if they had to decide again.

Dentistry

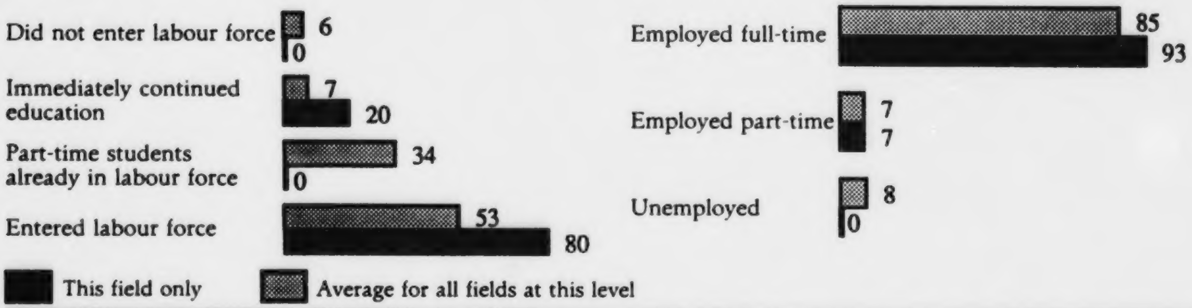
Medicine and Health

Master's
University (2 years)

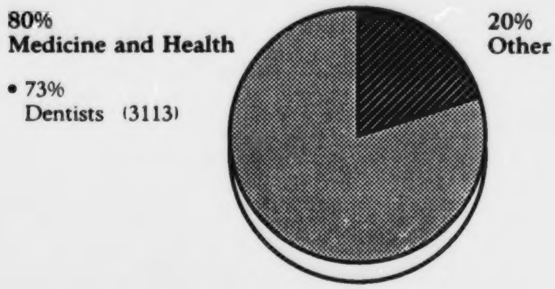
Graduate Trends and Projections

	1971	1981	1985	1986	1995
Number of Graduates	24	33	61	60	55
% of Total Master's Graduates	0.2	0.2	0.4	0.4	0.4

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation



Dentistry

Master's
University (2 years)

This field of study includes such programs as the professional dentistry program as well as specializations in oral biology, oral surgery, orthodontics and periodontics. The program prerequisites vary by institution, but in general, candidates must have an honours undergraduate degree, or the equivalent, in this or a closely related field of study from a recognized university. (Holders of graduate diplomas and certificates are included with master's graduates.) The diploma or certificate programs are generally shorter than the master's course and may be taken following either an undergraduate or a master's degree. About 65% of the 1985 graduates in Dentistry received diplomas and certificates rather than degrees. The master's course is offered in all provinces except Newfoundland, Prince Edward Island, New Brunswick and Saskatchewan and usually takes two years, depending on the institution. At some universities, it is possible to graduate through involvement in a CO-OP program, although according to 1984 data, only about 5% of the graduates received their qualification in this manner. The majority of graduates were men (65%) and were concentrated in Ontario (60%).

Graduate Trends and Projections

Enrollments, and therefore graduations, depend on the capacity of the specific faculty to absorb new students and on the demand for entrance. Both these factors are influenced, in part, by the current and anticipated labour market situation. Since 1981, the annual number of graduates has averaged 50. The popularity of this course, as indicated by its share of all master's graduates, held fairly constant fom 1971 to 1981, but has been increasing since that time. If the couse's current popularity and faculty capacities hold over the 1987 to 1995 period, about 60 students per year should graduate from this course.

Destination of Graduates

Upon graduation, a dramatically greater-than-average proportion of graduates became first-time labour force entrants, while at the same time, a greater-than-average proportion continued their education. This apparent contradiction is accounted for by the fact that no graduates entered the household sector, and none were taking this course on a part-time basis. The success of graduates who looked for employment was significantly better than for other master's graduates: all Dentistry graduates found jobs.

Occupations

Dentistry graduates working full-time two years after graduation were employed mostly as dentists in private practice. Others were employed in a variety of occupations, but were not concentrated in any one. Graduates of this course who seek employment face competition primarily from other university graduates in Dentistry at the undergraduate and doctorate levels.

The Course in Retrospect

A 1984 survey indicated that the transition from school to work was significantly more successful for 1982 graduates in this field than for other master's graduates, and that a lower-than-average proportion thought they possessed more qualifications than their current job required. The survey further indicated that all graduates agreed their job matched the field of study and all were satisfied with their job. In keeping with these statistics and the fact that dentists have the second highest average annual salary at the master's level ($52,600), approximately 95% of the graduates, compared with 80% of all master's graduates, indicated that they would follow the same educational route if they had to make this choice again.

Dental Hygiene/Assistant Technologies

Medicine and Health

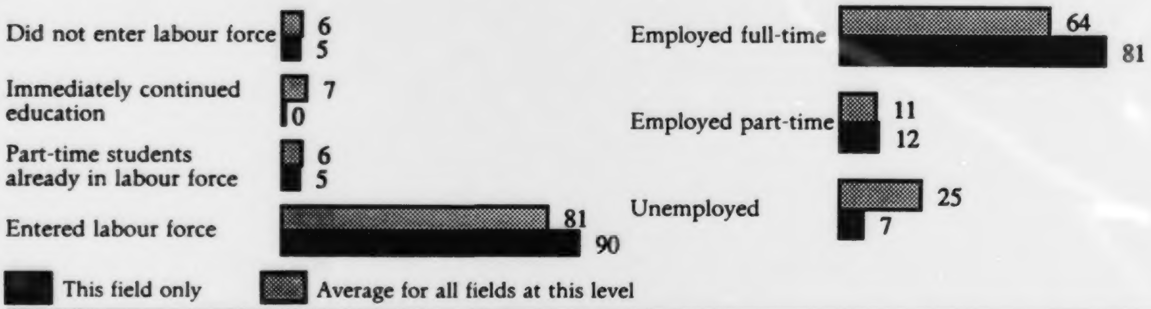
Trade/Vocational Programs
Public Trade Schools and Similar Institutions (10 months)

Graduate Trends

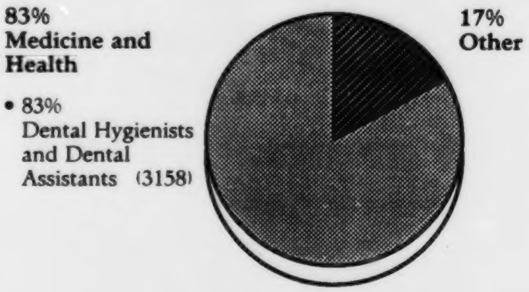
	1983-84*
Number of Graduates	501
% of Total Trade/Vocational Graduates	0.7

* This is the only period, since 1977, for which comprehensive and reliable data covering all provinces, territories and fields of study were available. Given this lack of historical data and the recent release of the data for 1983-84, no projections are yet available.

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation



Medicine and Health

Dental Hygiene/Assistant Technologies

Trade/Vocational Programs
Public Trade Schools and Similar Institutions (10 months)

Included in this field of study are training programs in such areas as dental hygiene, dental office assistance and denture therapy. The prerequisites for admittance to these programs vary according to the type of program (pre-employment or skill upgrading), the institution and the province. A 1984 survey indicated that graduates of this program had, on average, completed secondary school prior to enrollment in the course. This program lasts approximately 10 months and in 1983-1984, was offered only in Manitoba, Saskatchewan, Alberta and British Columbia. Women formed the majority of the 1984 graduates (98%). The average age of 1982 graduates was 22, significantly lower than the average for this level.

Graduate Trends and Projections

The number of successful completions reported in this field in 1983-1984 totalled approximately 500, accounting for less than 1% of all the completions in pre-employment and skill upgrading programs. If the current popularity of this course and the capacity of relevant faculties to absorb new students hold over the 1987 to 1995 period, the average annual number of graduates should decline slightly, owing to the declining size of the corresponding population age group.

Destination of Graduates

Graduates in the Dental Hygiene/Assistant Technologies training program entered the labour force in a higher proportion than in other fields at this level. Labour market conditions were relatively favourable, as only 7% of those who looked for a job could not find one. Similarly, graduates in this field were more likely than other trade-level graduates to find employment.

Occupations

Two years after graduation, the majority of graduates working full-time were employed as dental hygienists and dental assistants. To obtain these jobs, they had to compete with college graduates from the same field. Given the strong demand for dental hygienists and assistants at that time, however, graduates from both levels had relatively little difficulty in finding employment.

The Course in Retrospect

Because of such favourable conditions, almost all the graduates working full-time had jobs related to their training program and were satisfied with them. Only about 35% of the graduates, compared with 65% of all trade/vocational graduates, thought they had more education than was required by their current job. The majority were also quite satisfied with their training, as 70% stated they would take the same educational program if they had to make this decision again. College graduates in this field of study had even better success in the labour market.

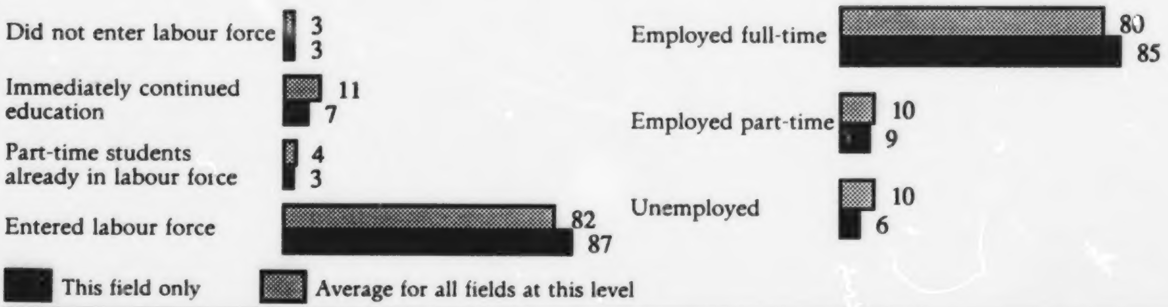
Dental Hygiene/Assistant Technologies

Career Program
Community College (1 year)

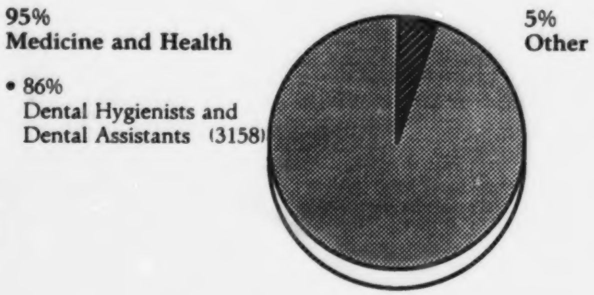
Graduate Trends and Projections

	1977	1981	1985	1986	1995
Number of Graduates	411	295	379	385	360
% of Total Community College Graduates	1.1	0.6	0.6	0.6	0.6

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation



Medicine and Health

Dental Hygiene/Assistant Technologies

Career Program
Community College (1 year)

This field of study includes programs in such areas as dental assistant, dental hygiene technology, denture therapy, dental hygiene, dental office assistance and medical and dental technology. The prerequisites for entrance into the field vary by institution, but in general, candidates must pass an interview, take a manual dexterity test, write a qualifying essay, undergo a medical examination, hold a valid cardio-pulmonary resuscitation (CPR) certificate, have some proficiency in typing, have some related work experience and have successfully completed senior high-school courses in English (French), mathematics, biology and chemistry. Candidates for the Dental Hygiene qualification must possess a dental assistant certificate. Dental Hygiene/Assistant Technologies is offered in all provinces except Newfoundland, Prince Edward Island and New Brunswick, and generally takes one year, depending on the institution. In some institutions, it is possible to graduate through involvement in a CO-OP program. According to 1984 data, roughly 20% of the graduates received their certificate or diploma in this manner. The majority of graduates were women (93%) and were concentrated in Quebec (55%).

Graduate Trends and Projections

Enrollments, and therefore graduations, depend on the capacity of the specific faculty to absorb new students and on the demand for entrance. Both these factors are influenced, in part, by the current and anticipated labour market situation. Since 1981, the annual number of graduates has averaged 350. The popularity of this course, as reflected by its share of all community college graduates, declined slightly from 1977 to 1981, but has held fairly constant since that time. If the course's current popularity and faculty capacities hold over the 1987 to 1995 period, about 400 students should graduate from this course per year. The number of new graduates competing for related employment is expected to be about the same over the projection period as it was between 1981 and 1985.

Destination of Graduates

After successful completion of their course, a higher-than-average proportion of graduates entered the labour force. The success of those who looked for a job is reflected in the lower-than-average unemployment rate (6%) and the greater-than-average proportion of graduates who found full-time employment. Of the graduates who did not enter the labour force, about 70% continued their education.

Occupations

Dental Hygiene/Assistant Technologies graduates who were working full-time two years after graduation were employed mostly as dental hygienists and dental assistants for dentists in private practice. The remainder were scattered across various other occupations, with no significant concentrations in any one. Graduates of this course searching for employment as dental hygienists or assistants face job competition primarily from trade/vocational and university graduates from similar fields of study.

The Course in Retrospect

Not only were graduates from this field of study more successful in the transition from school to work than other college graduates, but they also were more positive about their current job and the field of study. Almost all (99%) thought their present job matched the field of study, and a dramatically lower-than-average proportion (10%) thought they possessed more qualifications than their job required. In keeping with their low unemployment rate and significantly higher-than-average level of job satisfaction, about 80% of the graduates said that they would follow the same educational route if they had to choose again.

Medical Laboratory Technologies

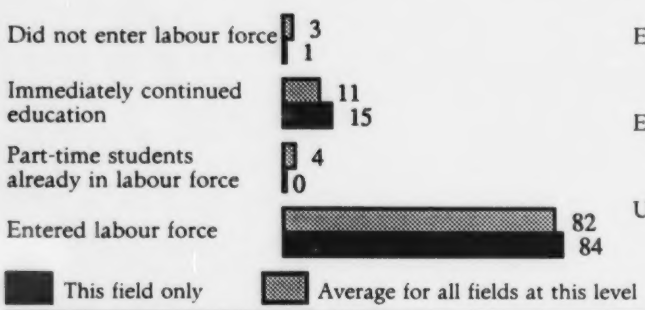
Medicine and Health

Career Program
Community College (3 years)

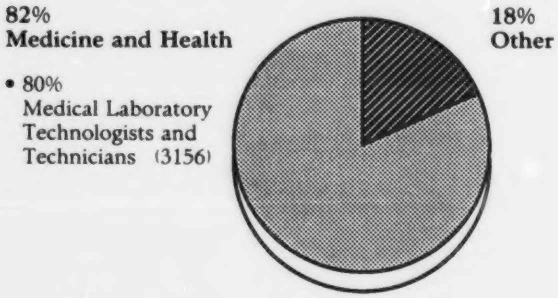
Graduate Trends and Projections

	1977	1981	1985	1986	1995
Number of Graduates	1.169	926	919	930	875
% of Total Community College Graduates	3.1	2.0	1.6	1.6	1.6

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation



Medical Laboratory Technologies

Career Program
Community College (3 years)

Programs in this field of study include cytology, histotechnology, medical laboratory assistant, medical technology, microbiology and virology. The prerequisites for entrance vary by institution, but in general, candidates must pass an interview, undergo a medical examination, write a qualifying essay and have senior high-school courses in chemistry, physics, English (French), mathematics and biology. The course of study is offered in all provinces except Prince Edward Island and generally takes three years, depending on the institution. In some institutions, it is possible to graduate through involvement in a CO-OP program. According to 1984 data, a significantly higher-than-average proportion of the graduates (25%) received their certificate or diploma in this manner. The majority of graduates were women (85%) and were concentrated in Ontario (40%).

Graduate Trends and Projections

Enrollments, and therefore graduations, depend on the capacity of the specific faculty to absorb new students and on the demand for entrance. Both these factors are influenced, in part, by the current and anticipated labour market situation. Since 1981, the annual number of graduates has averaged 875. The popularity of this course, as indicated by its share of total community college graduates, declined significantly between 1977 and 1986. If the course's current popularity and faculty capacities hold over the 1987 to 1995 period, about 900 students should graduate from this course per year. The number of new graduates competing for related employment is therefore expected to be about the same over the projection period as it was from 1981 to 1985.

Destination of Graduates

A slightly higher-than-average proportion of Medical Laboratory Technologies graduates immediately continued their education after graduation, while only about 85% of them entered the labour force. The graduates who looked for jobs had slightly better success than other graduates, although 20% were only able, either by design or circumstance, to find part-time jobs. The high incidence of part-time employment among these graduates kept their unemployment rate below 10%.

Occupations

The majority of graduates working full-time two years after graduation were employed mostly as medical laboratory technologists and technicians in hospitals or medical and other health labs. The remainder were working in a variety of other occupations, but were not concentrated in any one of these. Graduates of this course who seek employment as medical laboratory technologists and technicians face competition primarily from university graduates with a bachelor's degree in biology.

The Course in Retrospect

Medical Laboratory Technologies graduates not only experienced a slightly better-than-average labour market outcome (8% unemployment), but they also were very positive about the current employment and the field of study. Almost all (92%) thought their current job matched the field of study, and a smaller-than-average proportion (20%) considered themselves over-qualified for their job. The combination of a successful labour market outcome and a higher-than-average level of job satisfaction caused 70% of the graduates to state that they would follow the same educational route if they had to choose again.

Medical and Surgical Specialties

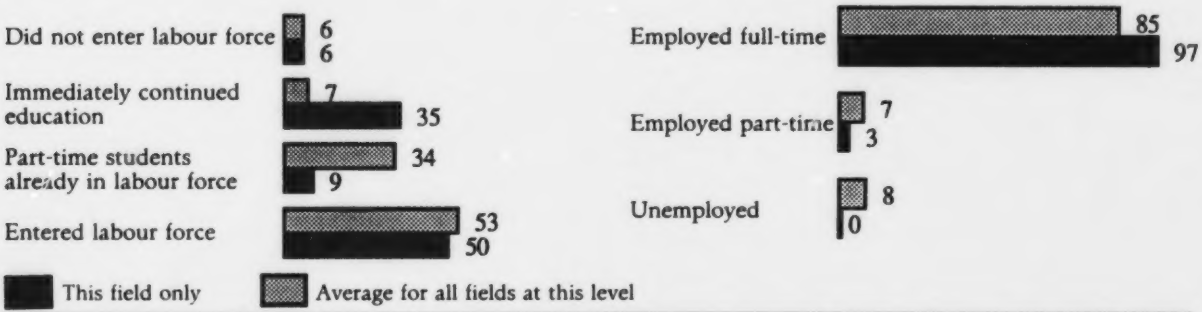
Medicine and Health

Master's
University (3 years)

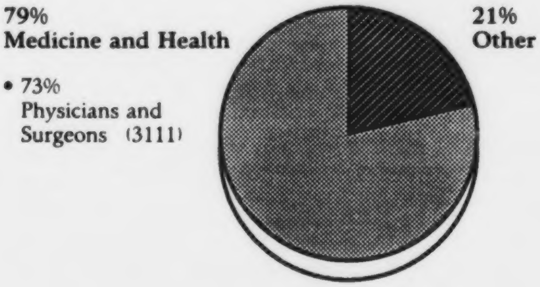
Graduate Trends and Projections

	1971	1981	1985	1986	1995
Number of Graduates	138	135	170	165	150
% of Total Master's Graduates	1.3	0.9	1.0	1.0	1.0

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation



Medical and Surgical Specialties

Master's
University (3 years)

This field of study includes programs in such areas as allergology, cardiology, anaesthesiology, dermatology, family medicine, internal medicine, brain surgery, heart surgery, neurosurgery, obstetrics and gynaecology, ophthalmology and plastic surgery. The entrance prerequisites vary by institution, but in general, candidates must have a MD or the equivalent in this or a closely related field of study from a recognized university. (Holders of graduate diplomas and certificates are included with master's graduates.) The diploma or certificate programs are generally shorter than the master's course and may be taken following either an undergraduate or a master's degree. About 75% of the 1985 graduates in this course of study received diplomas or certificates rather than degrees. The course is offered in all provinces except the Atlantic provinces and usually takes three years, depending on the institution. At some universities, it is possible to graduate through involvement in a CO-OP education program. According to 1984 data, roughly 15% of the graduates received their qualification in this manner. The majority of graduates were men (65%) and were concentrated in Ontario (60%).

Graduate Trends and Projections

Enrollments, and therefore graduations, depend on the capacity of the specific faculty to absorb new students and on the demand for entrance. Both these factors are influenced, in part, by the current and anticipated labour market situation. Since 1981, the annual number of graduates has averaged 175. The popularity of this course, as indicated by its share of all master's graduates, declined slightly from 1971 to 1981, but has since held fairly constant. If the course's current popularity and faculty capacities hold over the 1987 to 1995 period, about 150 students should graduate from this course per year. The number of new graduates competing for related employment is therefore expected to be lower over the projection period than it was between 1981 and 1985.

Destination of Graduates

Upon graduation, an average proportion of graduates became first-time labour force entrants, and a dramatically greater-than-average proportion continued their education. A far lower-than-average proportion (10%) were already in the labour force and had been attending school on a part-time basis. The success of graduates who looked for employment was significantly better than for other master's graduates — all of them found jobs.

Occupations

The majority of Medical/Surgical Specialty graduates working full-time two years after graduation were employed mostly as physicians and surgeons in private practice or in hospitals. The remainder had jobs in a variety of other occupations, but were not concentrated in any specific one. Graduates of this course who seek employment face competition from university graduates in medicine and the basic medical sciences.

The Course in Retrospect

A 1984 survey indicated that the transition from school to work was much more successful for 1982 graduates from this course of study than for other master's graduates, and that a lower-than-average proportion believed they possessed more qualifications than their current job required. The survey further indicated that a significantly greater-than-average proportion of graduates were satisfied with their current job. In keeping with this positive outcome and the fact that graduates from this course of study have the highest average annual salary at the master's level ($60,700), approximately 85% of them compared with 80% of all master's graduates, indicated they would follow the same educational route if they had to make this choice again.

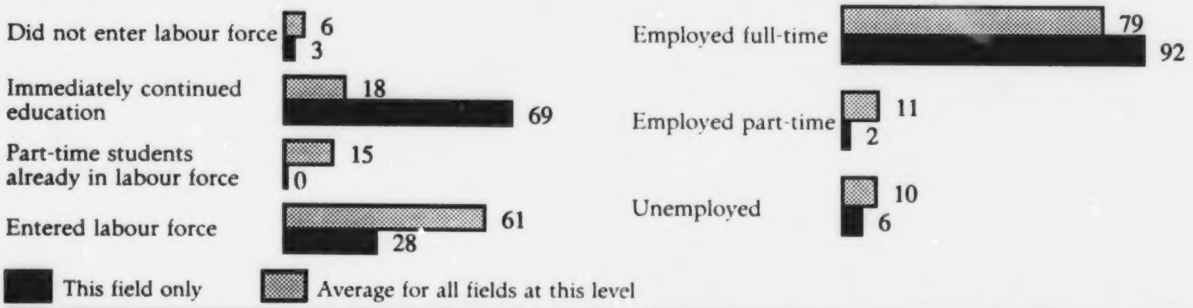
Medicine

Undergraduate
University (4 years)

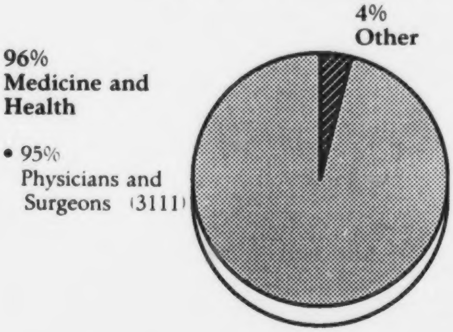
Graduate Trends and Projections

	1971	1981	1985	1986	1995
Number of Graduates	1.136	1.765	1.912	2.020	1.970
% of Total Undergraduate Degrees	1.6	1.8	1.7	1.7	1.7

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation



Medicine

Undergraduate
University (4 years)

This field of study refers to the professional program in Medicine. Enrollment in a faculty of medicine is usually limited, and competition is fierce. Generally, the minimum qualification is at least two years of university, with above-average standing in such courses as biology, general chemistry, organic chemistry, physics and mathematics. Quebec students applying to a Quebec faculty of Medicine must have a Diploma of Collegial Studies. For most faculties, candidates must also write the medical college admission test and pass an interview. The professional program in Medicine takes an average of four years and is offered in all provinces except Prince Edward Island and New Brunswick. In 1985, women represented 40% of the graduates in this field.

Graduate Trends and Projections

Although enrollment is limited, the number of graduates in Medicine increased from 1,136 in 1971 to 1,912 in 1985. Since 1981, an average of 1,870 persons have graduated each year, which represents 1.7% of all undergraduates. The relative popularity of the field has remained fairly constant over the years. If its current popularity and the capacity of relevant faculties of Medicine to absorb new students hold over the 1987 to 1995 period, about 2,100 students should graduate from this course per year.

Destination of Graduates

Upon completion of their professional program, Medicine graduates usually enter an internship program which may be considered either as pursuing higher education or obtaining employment. A 1984 survey indicated that the majority of graduates themselves reported they were continuing their education (these graduates included both those in internship/residency and those who were actually pursuing studies in a specialization). The survey further revealed that a small proportion of graduates were looking for work but were unable to find a job. This percentage probably also included those who dropped out.

Occupations

Two years after graduation, almost all the graduates who were employed full-time were working as physicians and surgeons. Given the specialized training necessary to become a physician, no other graduates compete with these graduates except those in the same field of study who pursue their training at the master's and doctorate levels.

The Course in Retrospect

In general, graduates from the professional program in Medicine were more satisfied with their course of study than other graduates at this level. A significantly higher-than-average proportion of them stated they would follow the same educational program if they had the opportunity to make the choice again. Almost no graduates considered themselves overqualified for their current job.

Nursing Aide/Orderly

Medicine and Health

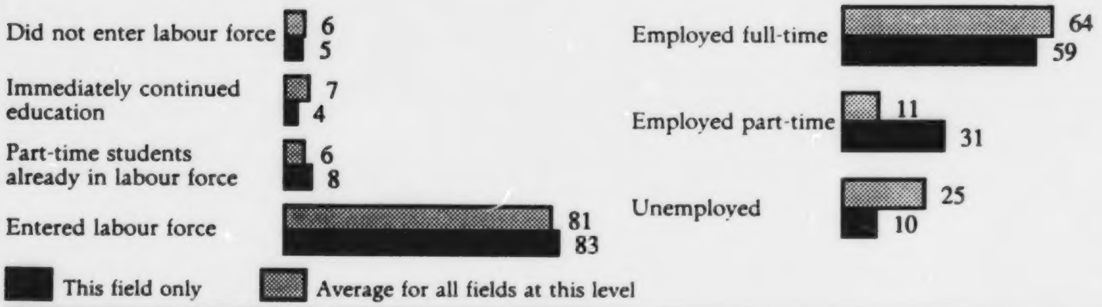
Trade/Vocational Programs
Public Trade Schools and Similar Institutions (9 months)

Graduate Trends

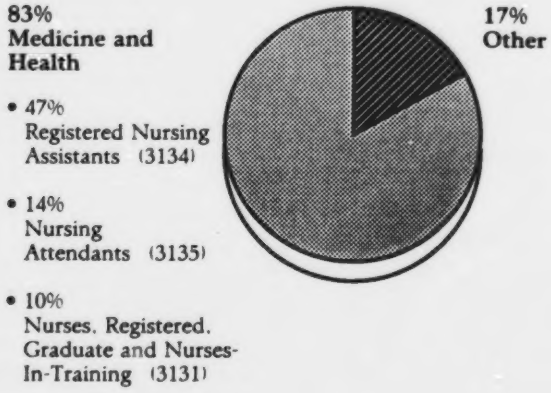
	1983-84*
Number of Graduates	4,069
% of Total Trade/Vocational Graduates	5.4

* This is the only period, since 1977, for which comprehensive and reliable data covering all provinces, territories and fields of study were available. Given this lack of historical data and the recent release of the data for 1983-84, no projections are yet available.

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation



Nursing Aide/Orderly

Trade/Vocational Programs
Public Trade Schools and Similar Institutions (9 months)

This field of study refers to training programs for health care aides, hospital orderlies, nursing assistant orderlies and practical nurses. The entrance requirements for these programs usually vary according to the type of program (pre-employment or skill upgrading), the institution and the province. Those who completed the course in 1982 had, on average, obtained a secondary school education before enrolling in the program. All provinces except Quebec offered this program in 1983-1984. It generally lasts nine months, depending on the type of program and the province. According to the 1984 data, the majority of graduates were women (90%).

Graduate Trends and Projections

In 1983-1984, more than 4,000 students successfully completed the Nursing Aide/Orderly course of study. This area of training was one of the largest at this level, accounting for more than 5% of all completions reported for pre-employment and skill upgrading programs. If the current popularity of this field of study and the capacity of relevant faculties to absorb new students hold over the 1987 to 1995 period, the average annual number of graduates should decline slightly, as a result of the declining size of the corresponding population age group.

Destination of Graduates

Upon completion of their program, a slightly higher-than-average proportion of graduates entered the labour force, resulting in a lower-than-average unemployment rate. However, many who found work were employed, either by design or circumstance, on a part-time basis.

Occupations

Of the graduates who were working full-time two years after graduation, most were employed in medicine and health, as nursing assistants, nursing attendants or nurses (registered, graduate and nurses-in-training category). Others were employed in many different occupations in numbers too small to be reported here. Nursing Aide/Orderly graduates at the trade level face job competition from graduates in other health-related fields of study at this level as well as from college graduates.

The Course in Retrospect

There was a slightly higher correspondence between the jobs held by the graduates in this field and their course of study than for other graduates at this level. A significantly lower-than-average proportion of them thought they were over-qualified for their current job. However, these results were gathered only from those who were working full-time. Only an average proportion of graduates (60%) said they would be ready to take the same educational program if they had to make this decision again.

Nursing

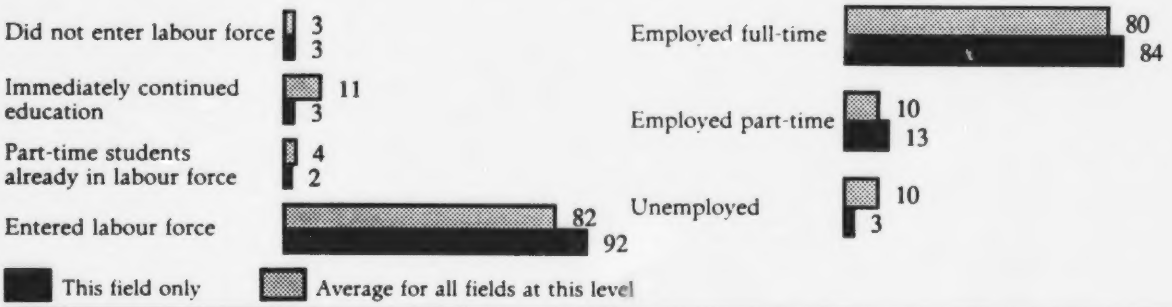
Medicine and Health

Career Program
Community College (2 years)

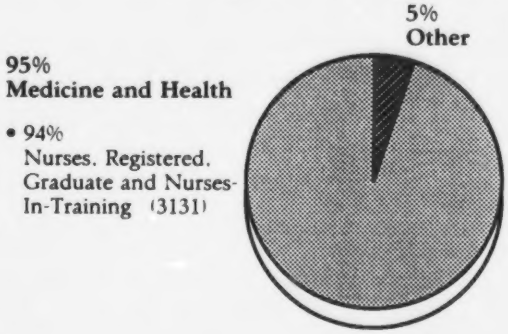
Graduate Trends and Projections

	1977	1981	1985	1986	1995
Number of Graduates	6,084	4,908	5,221	5,295	4,980
% of Total Community College Graduates	16.2	10.4	8.9	8.9	8.9

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation



Medicine and Health

Nursing

Career Program
Community College (2 years)

The Nursing field of study includes such programs as diploma nursing, diploma nursing leading to registered nurse qualification, nursing diploma and nursing technology. The entrance prerequisites vary according to the institution, but in general, candidates must pass an interview, take diagnostic English (French) and mathematics tests, submit a letter of reference, undergo a medical examination, possess a valid standard first aid certificate and have successfully completed senior high-school courses in English (French), mathematics, biology, chemistry and, in some instances, physics. The nursing course of study is offered by either community colleges or hospital schools of nursing in all provinces except Newfoundland, Prince Edward Island and New Brunswick. They usually take two years, depending on the institution. At some institutions, it is possible to graduate through involvement in a CO-OP program. According to 1984 data, roughly 20% of Nursing Diploma graduates received their certificate or diploma in this manner. The majority of the graduates were women (94%) and were concentrated in Quebec (45%).

Graduate Trends and Projections

Enrollments, and therefore graduations, depend on the capacity of the specific faculty to absorb new students and on the demand for entrance. Both these factors are influenced, in part, by the current and anticipated labour market situation. Since 1981, the annual number of graduates has averaged 5,395. Excluding graduates of hospital schools of nursing, they accounted for approximately 1,850 graduates per year. The popularity of this course, as indicated by its share of all community college graduates, declined significantly between 1977 (16% of all college graduates) and 1986 (9%). If the course's current popularity and faculty capacities hold over the 1987 to 1995 period, 6,800 students (including hospital schools of nursing) should graduate from this course per year.

Destination of Graduates

A significantly lower-than-average proportion of Diploma Nursing graduates continued their education, while a significantly greater-than-average proportion entered the labour force. Those who looked for work had better success than the average for all college fields of study. Their unemployment rate was only 3%.

Occupations

Diploma Nursing graduates working full-time two years after graduation were almost exclusively employed as nurses in the hospital industry. Others had jobs in various other occupations, but were not concentrated in any particular field. Graduates of this course who seek employment as nurses face competition primarily from college graduates with a diploma or certificate in Other Nursing and from university graduates with a bachelor's degree in Nursing.

The Course in Retrospect

Not only was the average labour market outcome of diploma Nursing graduates significantly better than that of other graduates, but their attitudes about their current employment and the field of study were also more positive. Almost all the graduates (99%) thought that the field of study matched their current job, and a very small proportion (5%) thought that they possessed more qualifications than the job required. The combination of a successful labour market transition and a higher-than-average level of job satisfaction led 70% of the graduates, compared with 65% of all college graduates, to state that they would select the same course if they had to choose again.

Nursing (Diploma)

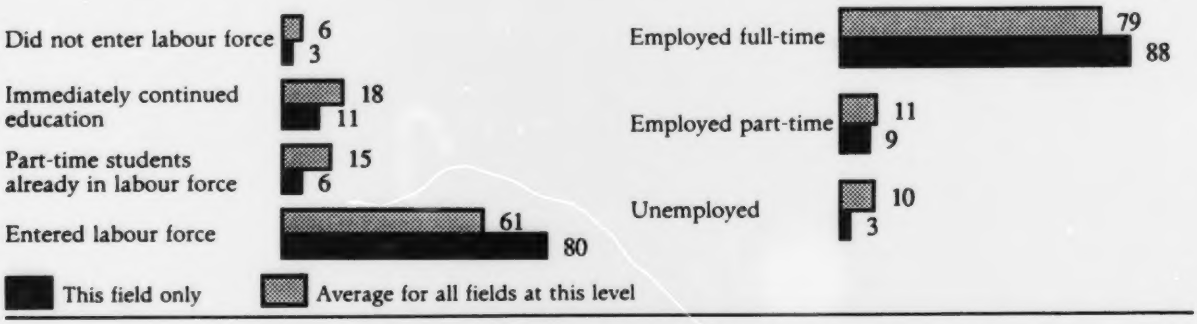
Medicine and Health

Undergraduate
University (3 years)

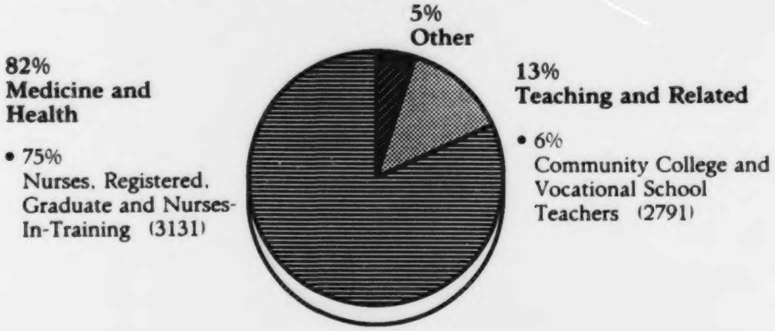
Graduate Trends and Projections

	1971	1981	1985	1986	1995
Number of Graduates	1.714	1.784	2.366	2.460	2.350
% of Total Undergraduate Degrees	2.4	1.8	2.1	2.1	2.1

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation



Nursing (Diploma)

Undergraduate
University (3 years)

Besides the Nursing program itself, this field of study includes related undergraduate programs, such as public health and community nursing, obstetrical nursing and outpost nursing. The minimum qualification for entrance to a Nursing program is a high-school diploma with good marks in relevant courses such as chemistry, biology, mathematics and physics. Quebec students applying to Quebec institutions must have a Diploma of Collegial Studies or a Diploma of Collegial Studies in Nursing. Registered nurses can usually enroll in an accelerated Nursing program, provided they meet the requirements of the institution. However, in many institutions, enrollment is limited. The average length of the Nursing program is three years, depending on the institution and the province. At some universities, it is possible to obtain the qualification through a CO-OP program combining periods of formal training with periods of related work experience. All provinces except Prince Edward Island offer an undergraduate program in Nursing. Women accounted for about 95% of the 1985 graduates.

Graduate Trends and Projections

The annual number of graduates in Nursing has fluctuated since 1971, especially in terms of undergraduate diplomas and certificates awarded. During the first half of the 1980s, an average of 2,180 students graduated in Nursing each year. This figure is similar to the annual average for the 1970s. The relative popularity of the course declined during the 1970s, but has been rising since 1981. If the course's current popularity and the capacity of relevant faculties to absorb new students hold over the 1987 to 1995 period, 2,400 students per year should graduate from this course.

Destination of Graduates

A significantly larger proportion of Nursing graduates than other undergraduates entered the labour force upon completion of their program. They experienced a more favourable labour market, however, as they had less difficulty in finding a full-time job; only a marginal number remained unemployed.

Occupations

Of the graduates who found full-time employment, the majority were employed as nurses, while others found work in occupations related to teaching, especially at the post-secondary non-university level. Graduates from this undergraduate course of study face competition in the labour market from community college graduates who are also qualified for the nursing profession, as well as from other university graduates in Nursing.

The Course in Retrospect

Graduate follow-up data indicate that Nursing diploma graduates fared better than others in the labour market, as they were more likely to find a job related to their field of study. A relatively large proportion of graduates were satisfied with their present job and 75%, compared with 65% of all undergraduates, stated they would choose the same field of study if they had to decide again. Relatively more Nursing graduates than average, however, considered themselves over-qualified for their current job.

Nursing

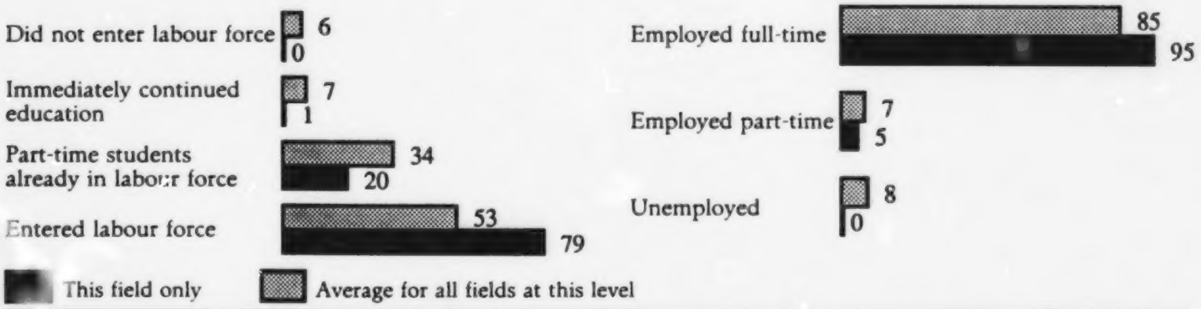
Medicine and Health

Master's
University (2 years)

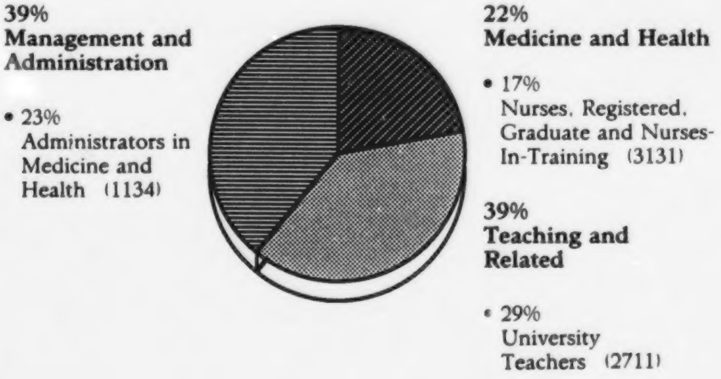
Graduate Trends and Projections

	1971	1981	1985	1986	1995
Number of Graduates	24	96	117	115	105
% of Total Master's Graduates	0.2	0.7	0.7	0.7	0.7

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation



Medicine and Health

Nursing

Master's
University (2 years)

The Nursing field of study includes programs in geriatric nursing, medical/surgical nursing, hospital nursing, obstetric nursing, paediatric nursing, psychiatric nursing and public health nursing. The program prerequisites vary by institution, but in general, candidates must have an honours undergraduate degree, or the equivalent, in this or a closely related field of study from a recognized university. As mentioned in the introduction, holders of graduate diplomas and certificates are included with master's graduates. The diploma or certificate programs are generally shorter than master's programs and may be taken following either an undergraduate or a master's degree. All the 1985 graduates in this field of study received degrees rather than diplomas or certificates. The master's course is offered in all provinces except Prince Edward Island and New Brunswick and usually takes two years, depending on the institution. At some universities, it is possible to graduate through involvement in a CO-OP program, although according to 1984 data, only about 5% of Nursing graduates received their degrees in this manner. The majority of graduates were women (95%) and were concentrated in Quebec (40%).

Graduate Trends and Projections

Enrollments, and therefore graduations, depend on the capacity of the specific faculty to absorb new students and on the demand for entrance. Both these factors are influenced, in part, by the current and anticipated labour market situation. Since 1981, the annual number of graduates has averaged 100. The popularity of this course, as indicated by the proportion of all master's graduates, rose during the 1970s but has since remained at the 1981 level. If the course's current popularity and the capacity of relevant faculties hold over the 1987 to 1995 period, 100 students should graduate from this course per year. The number of new graduates competing for related employment is therefore expected to be about the same over the projection period as it was from 1981 to 1985.

Destination of Graduates

Upon graduation, a much greater-than-average proportion of Nursing master's graduates became first-time labour force entrants, a statistic largely resulting from the significantly lower-than-average proportion who continued their education. The success of those who looked for employment was significantly better than that of other master's graduates; more Nursing graduates found full-time jobs. Graduates who were unable to find full-time work procured part-time employment.

Occupations

The majority of Nursing graduates working full-time two years after graduation were employed as university teachers, administrators in medicine and health and as nurses in the hospital or education industries. The remainder had jobs in a variety of other occupations, but were not concentrated in any one of them. Graduates of this course who seek employment face competition primarily from other university graduates at this and the undergraduate level, as well as from community college graduates of a similar program.

The Course in Retrospect

A 1984 survey indicated that the transition from school to work was significantly more successful for 1982 Nursing graduates than for other master's graduates, and that a far lower-than-average proportion considered themselves over-qualified for their current job. The survey further indicated that a greater-than-average proportion of graduates were satisfied with their current job. In keeping with these statistics, 85% of the graduates, compared with 80% of all master's graduates, indicated that they would follow the same educational route if they had to make this choice again.

Other Nursing

Medicine and Health

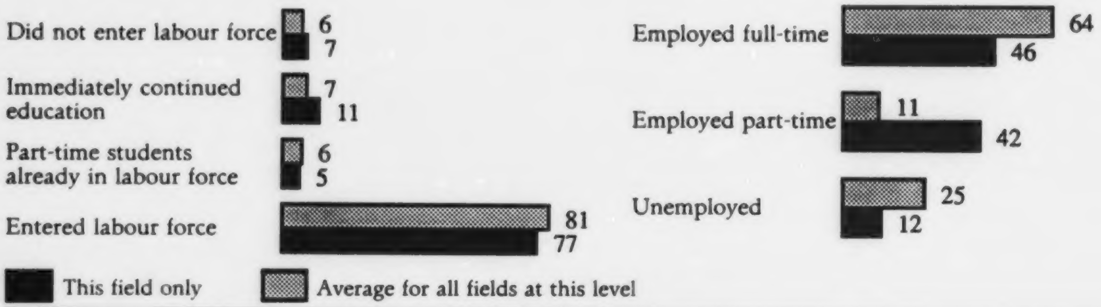
Trade/Vocational Programs
Public Trade Schools and Similar Institutions (8 months)

Graduate Trends

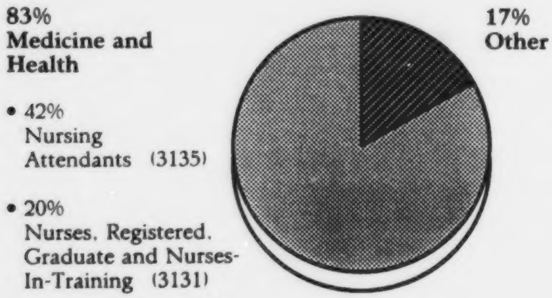
	1983-84*
Number of Graduates	280
% of Total Trade/Vocational Graduates	0.4

* This is the only period, since 1977, for which comprehensive and reliable data covering all provinces, territories and fields of study were available. Given this lack of historical data and the recent release of the data for 1983-84, no projections are yet available.

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation



Other Nursing

Trade/Vocational Programs
Public Trade Schools and Similar Institutions (8 months)

This field of study consists of training programs covering areas such as diploma nursing, nursing refresher study, psychiatric or mental health nursing, public health nursing and dental nursing. The minimum qualifications necessary for entrance to these programs vary according to the type of program offered (pre-employment or skill upgrading), the institution and the province. A 1984 survey indicated that graduates of this course of study had, on average, obtained some college education before enrolling in the program. The course was offered in Quebec, Ontario, Manitoba and British Columbia in 1983-1984, and lasted an average of eight months, according to the type of program. Graduates were, on average, older (32) than graduates from other fields (26), and more than 90% of them were women.

Graduate Trends and Projections

In the 1983-1984 period, the number of graduates from this field of study totalled almost 300, representing less than 1% of all trade-level graduates. If the current popularity of the course and the capacity of relevant faculties to absorb new students hold over the 1987 to 1995 period, the average annual number of graduates should decline slightly, owing to the declining size of the corresponding population age group.

Destination of Graduates

A lower-than-average proportion of graduates decided to enter the labour force upon completion of their program, a statistic resulting partly from the higher-than-average proportion who decided to further their education. Those who looked for a job fared much better than other trade/vocational graduates, which is evident in their 12% unemployment rate. This is a lower-than-average rate, owing to the greater-than-average success of graduates who, unable to find full-time work, procured part-time jobs.

Occupations

Two years after graduation, the majority of graduates working full-time were employed in occupations related to medicine and health, especially as nursing attendants or as nurses (registered, graduate and nurses-in-training categories). For these occupations, graduates in this field of study are in competition with other trade-level and college graduates from related nursing fields. Graduates who did not enter health occupations were employed in a variety of other occupations in numbers too small to be reported.

The Course in Retrospect

Considering the relatively low unemployment rate for graduates in this course of study and the occupations they entered, it is no surprise that almost all of those who were employed full-time were working in jobs they believed matched their training program. They were also unlikely to consider themselves over-qualified for their current job. In comparison with graduates from other fields, they fared better in the labour market, which partly explains why close to 80% of the graduates, as opposed to 60% of all trade/vocational graduates, stated they would be ready to take the same educational program if they had to choose again.

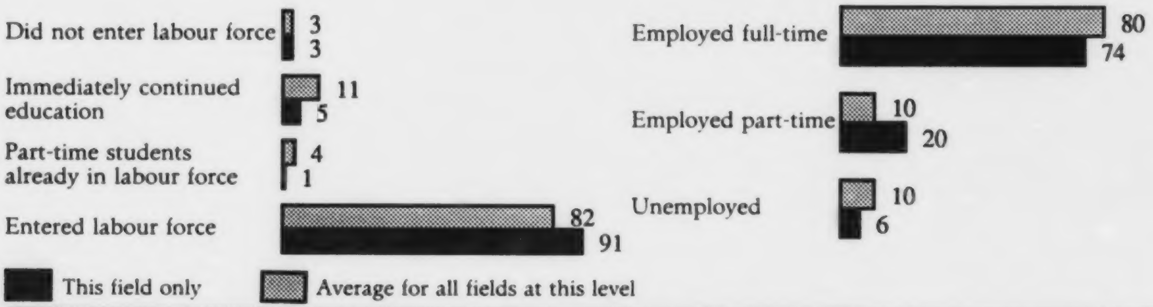
Other Nursing

Career Program
Community College (2 years)

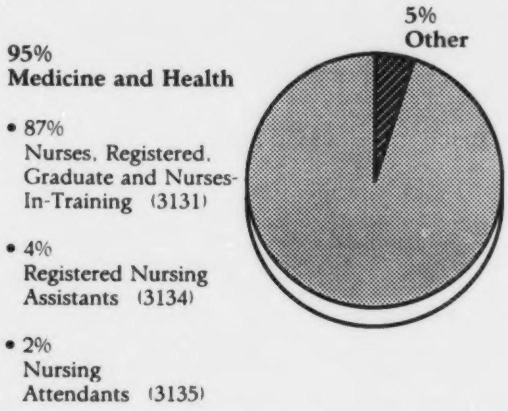
Graduate Trends and Projections

	1977	1981	1985	1986	1995
Number of Graduates	308	285	494	500	470
% of Total Community College Graduates	0.8	0.6	0.8	0.8	0.8

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation



Other Nursing

Career Program
Community College (2 years)

At the community college level, this field of study includes programs in nursing aide/orderly, nursing assistant, registered nursing assistant, studies; nursing refresher study, psychiatric or mental health nursing; and public health, dental and other specialized nursing. The program prerequisites vary by institution, but in general, candidates must pass an interview, present an appropriate letter of reference, undergo a medical examination and have completed senior high-school courses in mathematics, English (French), biology and chemistry. In addition, the candidate must take diagnostic English (French) and mathematics tests, hold a valid standard first aid certificate and, in some cases, be a registered nurse. The course of study is offered in all provinces except Newfoundland, Prince Edward Island, Nova Scotia and New Brunswick and generally takes two years, depending on the institution. At some colleges, students may graduate through involvement in a CO-OP program. According to 1984 data, a significantly higher-than-average proportion of graduates in Other Nursing (25%) received their certificate or diploma in this manner.

Graduate Trends and Projections

Enrollments, and therefore graduations, depend on the capacity of the specific faculty to absorb new students and on the demand for entrance. Both these factors are influenced, in part, by the current and anticipated labour market situation. Since 1981, the annual number of graduates has averaged 425. The popularity of this course, as indicated by its share of all community college graduates, declined slightly between 1977 and 1981, but has since returned to the 1977 level. If the course's current popularity and the capacity of relevant faculties to absorb new students hold over the 1987 to 1995 period, about 500 students should graduate from this course per year.

Destination of Graduates

While a significantly lower-than-average proportion of graduates continued their education (5%), a significantly larger-than-average proportion decided to look for a job. The latter had better success in the labour market than other graduates at this level, although 20% were only able to find part-time work. The unemployment rate for Other Nursing graduates was lower than the average for all college graduates.

Occupations

Other Nursing graduates who were working full-time two years after graduation were employed mostly as nurses in the hospital industry. Others were employed in a variety of other occupations, but were not concentrated in any of them. Graduates of this course who seek employment as nurses face competition primarily from other college graduates in diploma nursing and from university graduates with a bachelor's degree in nursing.

The Course in Retrospect

Not only did Other Nursing graduates experience a significantly better-than-average labour market outcome (6% unemployment), but they also were very positive about their current employment and the field of study. Almost all of them (96%) thought that their current job matched the field of study, and a very small proportion (10%) believed they were overqualified for their job. In keeping with their successful transition from school to work and their higher-than-average level of job satisfaction, 65% of the graduates stated that they would select the same course if they had to choose again.

Other Health

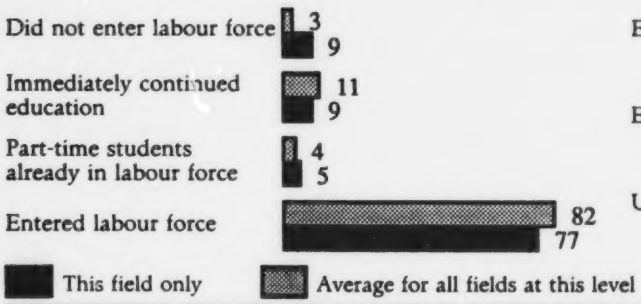
Medicine and Health

Career Program
Community College (2 years)

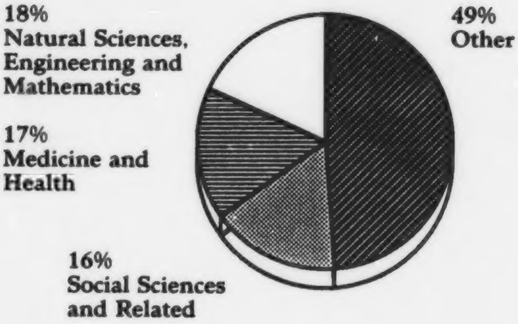
Graduate Trends and Projections

	1977	1981	1985	1986	1995
Number of Graduates	481	324	528	535	505
% of Total Community College Graduates	1.3	0.7	0.9	0.9	0.9

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation



Medicine and Health

Other Health

Career Program
Community College (2 years)

This field of study includes programs in health care support (hospital porter, operating room technician), biological science (biological laboratory technician, biomedical engineering), public/environmental health (public health inspector) and health education. The program prerequisites vary by institution, but in general, candidates must pass an interview, take a medical examination and have successfully completed senior high-school courses in mathematics, English (French), chemistry, biology and physics. The course of study is offered in all provinces except Newfoundland, Prince Edward Island and New Brunswick and generally takes two years, depending on the institution. At some colleges, students may graduate through involvement in a CO-OP program. According to 1984 data, roughly 10% of Other Health graduates received their certificate or diploma in this manner. The majority of graduates were women (80%) and were concentrated in Quebec (55%).

Graduate Trends and Projections

Enrollments, and therefore graduations, depend on the capacity of the specific faculty to absorb new students and on the demand for entrance. Both these factors are influenced, in part, by the current and anticipated labour market situation. Since 1981, the annual number of graduates has averaged 450. The popularity of this course, as indicated by the proportion of all community college graduates, declined slightly between 1977 and 1981, and although it has risen since then, it remains lower than the 1977 level. If the course's current popularity and faculty capacities hold over the 1987 to 1995 period, 500 students should graduate from this course per year.

Destination of Graduates

Upon graduation, a lower-than-average proportion of graduates entered the labour force. The proportion of those who looked for a job but were unsuccessful was slightly lower than the average for all college graduates, largely because of the number who, unable to find full-time employment, procured part-time jobs. About 50% of the graduates who did not enter the labour force continued their education.

Occupations

Other Health graduates working full-time two years after graduation were employed mostly in the natural sciences, engineering and mathematics, medicine and related fields or in social science occupations in the health and social service or education industries.

The Course in Retrospect

Although the transition from school to the labour market appeared more successful for graduates in this field of study (8% unemployment) than for other college graduates, a lower-than-average proportion were satisfied with their current job. This dissatisfaction is reflected by the smaller proportion who thought their job matched the field of study and the larger-than-average proportion who considered themselves over-qualified for their current employment. In spite of this apparent dissatisfaction, an average proportion of the graduates stated they would follow the same educational route if they had to choose again.

Other Health

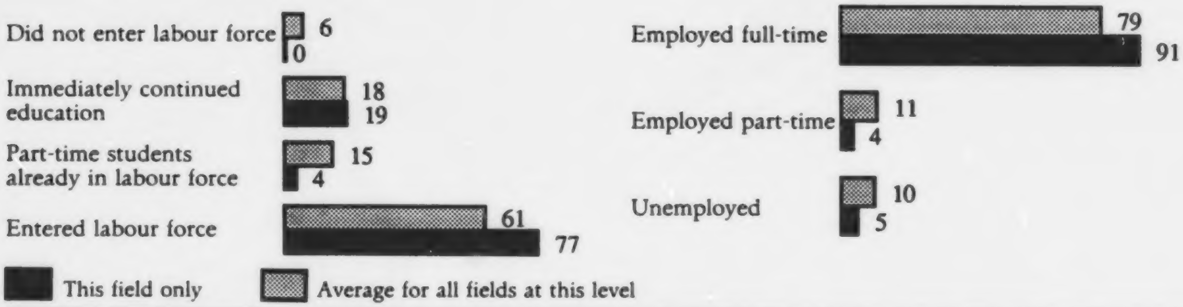
Medicine and Health

Undergraduate
University (3 years)

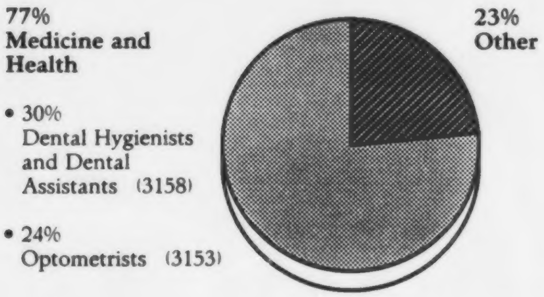
Graduate Trends and Projections

	1971	1981	1985	1986	1995
Number of Graduates	245	504	502	510	470
% of Total Undergraduate Degrees	0.3	0.5	0.4	0.4	0.4

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation



Other Health

Undergraduate
University (3 years)

This field of study covers such areas of specialization as microbiology, optometry, immunology, social and preventive medicine, medical laboratory science and dental hygiene. The diversity of these various disciplines makes a standardized set of prerequisites difficult to establish. Admission into optometry, as one example, requires some years of post-secondary education in sciences with above-average marks, since competition is fierce and enrollment is limited. A degree in optometry usually takes four years. Admission to the other programs may require a high-school diploma (or Diploma of Collegial Studies) with emphasis on appropriate courses, such as biology, chemistry, physics or mathematics. Institutions offering these undergraduate programs are located in Nova Scotia, Quebec, Ontario, Manitoba, Saskatchewan, Alberta and British Columbia. Many offer a diploma or certificate in one of the programs. Women represented about 70% of the graduates in this field of study in 1985.

Graduate Trends and Projections

Undergraduate qualifications awarded in this major field of study include as many bachelor's degrees as certificates or diplomas. The number of qualifications awarded between 1971 and 1985 in Other Health at this level increased twofold. The relative popularity of the field, however, grew only slightly during these years. Since 1981, approximately 475 individuals have graduated each year in this field. If the current popularity of this course and the capacity of relevant faculties to absorb new students hold over the 1987 to 1995 period, about 500 students should graduate from this course per year. The number of new graduates competing for related employment is therefore expected to remain about the same over the projection period as it was from 1981 to 1985.

Destination of Graduates

Upon graduation, a greater-than-average proportion of graduates decided to enter the labour force. Labour market conditions were favourable, since about 90% found full-time employment and a smaller-than-average proportion remained unemployed.

Occupations

Two years after graduation, Other Health graduates employed full-time were working, for the most part, in occupations related to medicine and health, especially as optometrists, dental hygienists and dental assistants. Others had jobs in many different occupations, and were not concentrated in any one.

The Course in Retrospect

In general, graduates in this field of study were more likely than others to find a job related to their program of study. Their favourable labour market outcomes are apparent in the smaller-than-average proportion who considered themselves over-qualified for their current job. Finally, a greater-than-average proportion stated they would follow the same course of study if they had the opportunity to make that decision again.

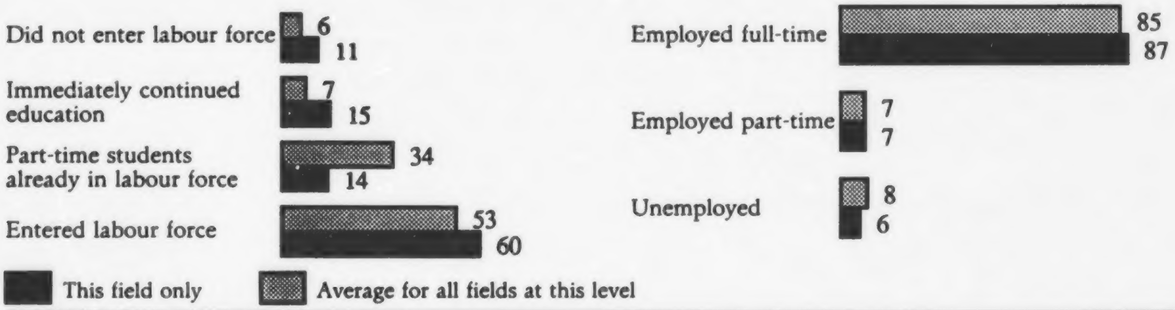
Other Health

Master's
University (2 years)

Graduate Trends and Projections

	1971	1981	1985	1986	1995
Number of Graduates	97	198	333	330	295
% of Total Master's Graduates	0.9	1.4	2.0	2.0	2.0

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation

59% Medicine and Health	17% Management and Administration	8% Social Sciences and Related	8% Natural Sciences, Engineering and Mathematics	8% Other
• 36% Physicians and Surgeons (3111) • 10% Audio and Speech Therapists (3136)	• 10% Administrators in Medicine and Health (1134)			

Medicine and Health

Other Health

Master's
University (2 years)

This field of study includes areas of specialization in microbiology, immunology, pathology, optometry, community medicine and hygiene, medical public health, preventive medicine, public health inspector studies, medical laboratory and science and radiological technologist studies. The prerequisites for entrance into the field vary by institution, but in general, candidates must have an honours undergraduate degree, or the equivalent, in this or a closely related field of study from a recognized university. As mentioned in the introduction, holders of graduate diplomas and certificates are included with master's graduates. The diploma or certificate programs are generally shorter than the master's program, and may be taken following either an undergraduate or a master's degree. About 30% of the 1985 graduates in Other Health received diplomas and certificates rather than degrees. The master's course of study is offered in all provinces except Newfoundland, Prince Edward Island and New Brunswick and usually takes two years, depending on the institution. At some universities, it is possible to graduate through involvement in a CO-OP program. According to 1984 data, roughly 10% of graduates in Other Health received their qualification in this manner. The majority of graduates were women (55%) and were concentrated in Ontario (60%).

Graduate Trends and Projections

Enrollments, and therefore graduations, depend on the capacity of the specific faculty to absorb new students and on the demand for entrance. Both these factors are influenced, in part, by the current and anticipated labour market situation. Since 1981, the annual number of graduates has averaged 250. The popularity of this course, as indicated by its share of all master's graduates, grew slowly and consistently between 1971 and 1985. If the current popularity of this course and faculty capacities hold over the 1987 to 1995 period, 300 students per year should graduate from this course.

Destination of Graduates

Upon graduation, significantly more of these graduates than other master's graduates became first-time labour force entrants. The success of those who looked for work was slightly better than that of other master's graduates, which is evident in their slightly lower-than-average unemployment rate (6%).

Occupations

The majority of Other Health graduates who were employed full-time two years after graduation were working in the medicine and health field, especially as physicians and surgeons or audio and speech therapists in hospitals. The remainder were employed in a variety of other occupations, particularly in management and administration and the social sciences. Graduates of this course who seek employment face competition primarily from other university graduates in this or closely related fields of study.

The Course in Retrospect

A 1984 survey indicated that the transition from school to work was slightly more successful for 1982 Other Health graduates than for other master's graduates, and that a lower-than-average proportion considered themselves over-qualified for their current job. The survey further indicated that a significantly greater-than-average proportion thought their job matched the field of study and were satisfied with this job. In spite of these positive statistics and an average annual salary that was about $10,000 higher than the average for all other master's graduates, only an average proportion (80%) of Other Health graduates indicated that they would follow the same educational route if they had to make this choice again.

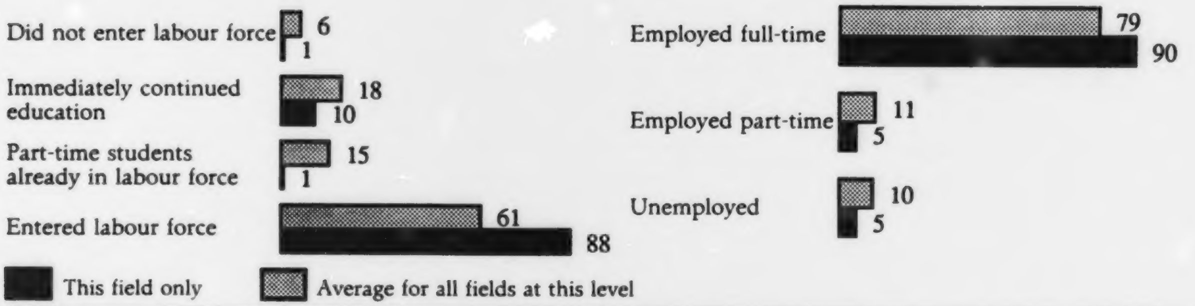
Pharmacy

Undergraduate
University (4 years)

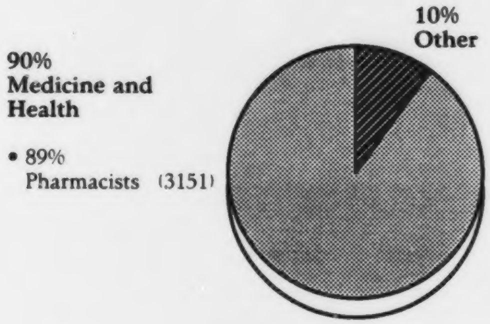
Graduate Trends and Projections

	1971	1981	1985	1986	1995
Number of Graduates	448	646	635	670	650
% of Total Undergraduate Degrees	0.6	0.7	0.6	0.6	0.6

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation



Medicine and Health

Pharmacy

Undergraduate
University (4 years)

In addition to Pharmacy, this field of study includes such undergraduate programs as community pharmacy, hospital pharmacy, industrial pharmacy and retail pharmacy. Applicants must have a high-school diploma with good standing in chemistry, physics, mathematics and biology. Quebec students applying to Quebec institutions must have a Diploma of Collegial Studies covering the same courses. Enrollment is limited, and some institutions require candidates to write the Pharmacy College Admission Test. The program is offered in all provinces except Prince Edward Island and New Brunswick and lasts approximately four years. Some institutions offer the degree through a CO-OP program involving periods of formal training and related work experience. Roughly 10% of 1982 graduates obtained their qualification in this way. The average age of graduates in this field of study is 23. Women are in the majority; in 1985 they accounted for about 65% of the graduates.

Graduate Trends and Projections

Because of limited enrollment, the number of graduates in Pharmacy has not changed much over the last 16 years. Between 1971 and 1977, however, the annual number of graduates increased from 448 to 721. Since 1981, the number has hovered around 650, which represents less than 1% of all undergraduates. If the current popularity of this course and the capacity of relevant faculties to absorb new students hold over the 1987 to 1995 period, about 700 students per year should graduate from this course. The number of new graduates competing for related employment is therefore expected to be about the same over the projection period as it was from 1981 to 1985.

Destination of Graduates

Graduates from this field had one of the highest rates of participation in the labour force among 1984 graduates. A significantly lower-than-average proportion of them decided to pursue their formal training. Those who looked for work were significantly more successful than other graduates in finding full-time employment.

Occupations

Two years after graduation, Pharmacy graduates employed full-time were working mostly as pharmacists. Owing to the specialized training required for this occupation, there is little job competition between Pharmacy graduates and graduates from other fields.

The Course in Retrospect

Generally, Pharmacy graduates were very positive about their early labour market experiences. They reported a greater-than-average level of satisfaction with their job and the program of study. Overall, about 80% of them, compared with 70% of all undergraduates, stated they would be ready to enroll in the same educational program if they had to make the choice again.

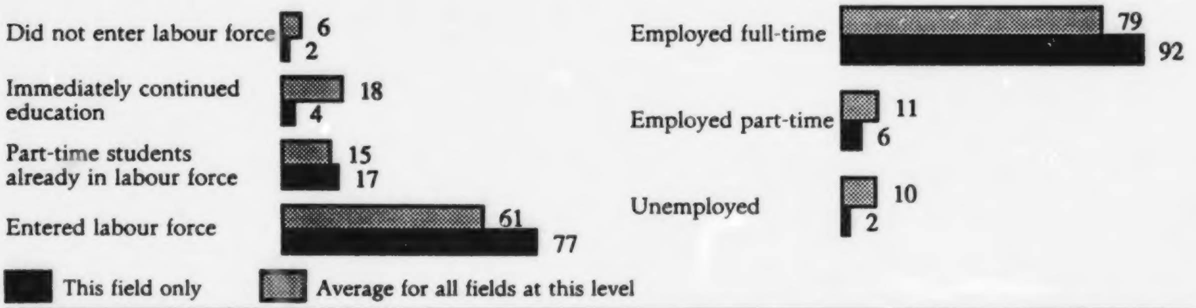
Rehabilitation Medicine

Undergraduate
University (3 years)

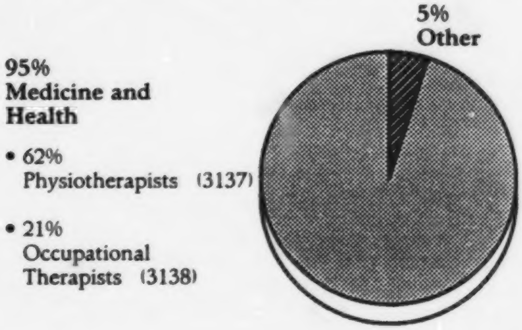
Graduate Trends and Projections

	1971	1981	1985	1986	1995
Number of Graduates	471	849	866	910	890
% of Total Undergraduate Degrees	0.6	0.9	0.8	0.8	0.8

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation



Rehabilitation Medicine

Undergraduate
University (3 years)

This field of study includes such undergraduate programs as occupational therapy, physiotherapy, speech pathology and audiology and rehabilitation medicine. The basic entrance requirements of these programs are high-school graduation and one year of university education covering such courses as biology, mathematics, chemistry and physics. Quebec students applying to a Quebec institution are required to have a Diploma of Collegial Studies including the above-mentioned courses. Admission to this course of study is limited in most institutions, and above-average standing in the appropriate courses is an asset. The course is offered in all provinces except Newfoundland, Prince Edward Island and New Brunswick and takes an average of three years, depending on the province and the institution. At some universities, it is possible to obtain a degree through a CO-OP program combining periods of formal training and periods of related work. Most graduates are women, who in 1985, represented 90% of the graduating class.

Graduate Trends and Projections

The number of individuals graduating in Rehabilitation Medicine has increased steadily over the past 16 years. During the first half of the 1980s, an average of about 850 persons graduated in this field each year, compared with about 675 during the 1970s. The relative popularity of the field has remained fairly stable in recent years; graduates in Rehabilitation now account for, on average, 0.8% of all undergraduates. If the current popularity of this course and the capacity of relevant faculties to absorb new students hold over the 1987 to 1995 period, 900 students per year should graduate from this course. The number of new graduates competing for related employment is therefore expected to remain about the same over the projection period as it was between 1981 and 1985.

Destination of Graduates

Almost no Rehabilitation Medicine graduates decided to pursue their education, because of the favourable labour market conditions awaiting them. A dramatically greater-than-average proportion of them chose to enter the labour force, and they had less difficulty than other graduates in securing a full-time job. Unemployment was negligible for these graduates.

Occupations

Of the graduates working full-time two years after they graduated, almost all were employed in occupations related to medicine and health, mostly as physiotherapists and occupational therapists. Graduates from this field of study face competition in the labour market from university graduates in related fields, such as human kinetics, and from holders of master's degrees in Rehabilitation Medicine.

The Course in Retrospect

Almost all Rehabilitation Medicine graduates thought their job was related to the education program. The proportion of graduates satisfied with their current job was significantly higher than in other fields, and the graduates were also less likely to consider thmemselves over-qualified for their job. This positive outcome is reflected by the fact that relatively more graduates in this field than in others at this level stated they would be ready to take the same educational program if they had to make the choice again.

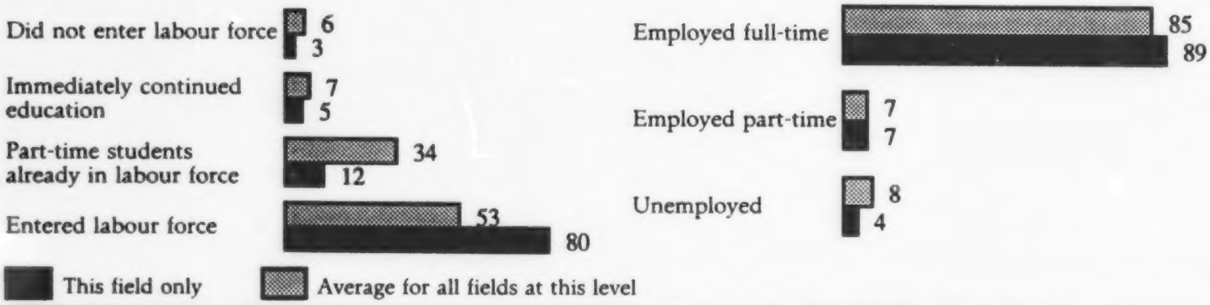
Rehabilitation Medicine

Master's
University (2 years)

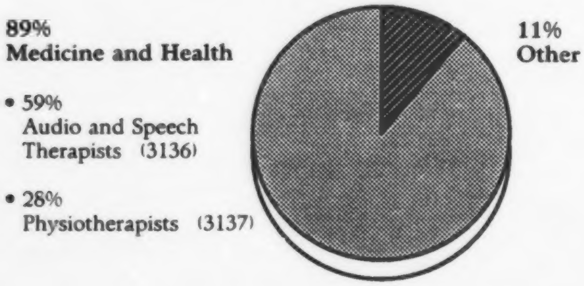
Graduate Trends and Projections

	1971	1981	1985	1986	1995
Number of Graduates	29	104	87	85	80
% of Total Master's Graduates	0.3	0.7	0.5	0.5	0.5

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation



Medicine and Health

Rehabilitation Medicine

Master's
University (2 years)

At the master's level, this field of study includes programs in such areas as aural/oral rehabilitation, occupational therapy and physical therapy. The program prerequisites vary by institution, but in general, candidates must have an honours undergraduate degree, or the equivalent, in this or a closely related field of study from a recognized university. As mentioned in the introduction, holders of graduate diplomas and certificates are included with master's graduates. The diploma or certificate programs are usually shorter than the master's course and may be taken following either an undergraduate or a master's degree. In this instance, all the 1985 graduates received degrees rather than diplomas or certificates. The course is offered in all provinces except Newfoundland, Prince Edward Island, New Brunswick, Manitoba and Saskatchewan, and generally takes two years, depending on the institution. At some universities, students may graduate through involvement in a CO-OP program, although according to 1984 data, only about 5% of the graduates received their degree in this manner. Almost all of the graduates were women (98%) and were concentrated in Quebec (45%).

Graduate Trends and Projections

Enrollments, and therefore graduations, depend on the capacity of the specific faculty to absorb new students and on the demand for entrance. Both these factors are influenced, in part, by the current and anticipated labour market situation. Since 1981, the annual number of graduates has averaged 100. The popularity of this course, as reflected by its share of all master's graduates, increased slightly between 1971 and 1981, but has since begun to fall off. If the current popularity of this course and faculty capacities hold over the 1987 to 1995 period, about 75 students should graduate from this course per year. The number of new graduates competing for related employment is therefore expected to be lower over the projection period than it was between 1981 and 1985.

Destination of Graduates

Upon graduation, a greater-than-average proportion of graduates became first-time labour force entrants. Smaller-than-average proportions continued their education or entered the household sector. The success of graduates who looked for employment was better than that of other master's graduates: a greater-than-average proportion found full-time employment, resulting in a lower-than-average unemployment rate (4%).

Occupations

The majority of Rehabilitation Medicine graduates working full-time two years after graduation were employed in the medicine and health field, as audio and speech therapists, or in the education and hospital industries, as physiotherapists. The remainder had jobs in a variety of other occupations but were not concentrated in any specific area. Graduates of this course who seek employment as therapists face competition primarily from other university graduates in this field of study and from community college graduates of similar courses.

The Course in Retrospect

A 1984 survey indicated that the transition from school to work was more favourable for 1982 graduates in this field than for other master's graduates, and that a dramatically lower-than-average proportion believed they possessed more qualifications than their current job required. The survey further indicated that a significantly greater-than-average proportion thought their job matched the field of study and were satisfied with their job. These positive statistics outweigh the fact that the graduates were earning an average annual salary that was about $5,000 dollars lower than the average for all master's graduates, since approximately 90% of them indicated they would follow the same educational route if they had to make this choice again.

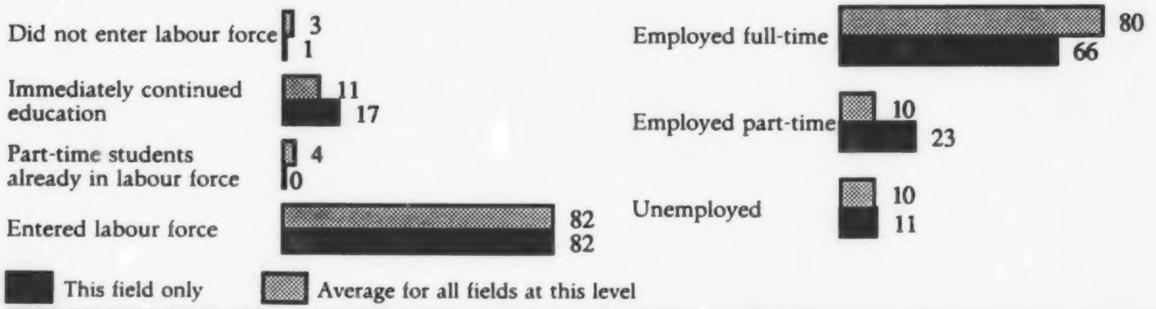
X-Ray/Radiology/Nuclear Medicine Technologies

Career Program
Community College (2 years)

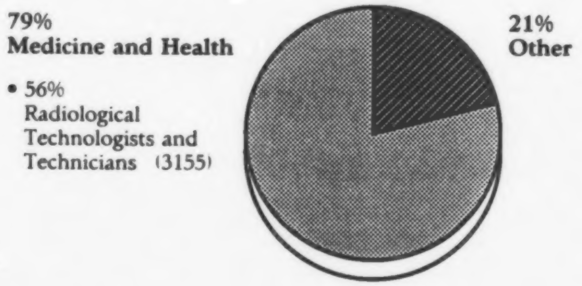
Graduate Trends and Projections

	1977	1981	1985	1986	1995
Number of Graduates	490	477	575	585	550
% of Total Community College Graduates	1.3	1.0	1.0	1.0	1.0

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation



Medicine and Health

X-Ray/Radiology/Nuclear Medicine Technologies

Career Program
Community College (2 years)

This field of study offers programs in such areas as ultrasonography, radiography, nuclear medicine, medical isotopes and medical radiology. The entrance prerequisites vary by institution, but in general, candidates must pass an interview, submit an appropriate letter of recommendation, and have successfully completed senior high-school courses in mathematics, English (French), chemistry, biology and physics. The course is offered in all provinces except Prince Edward Island and New Brunswick, and generally takes two years, depending on the institution. At some institutions, it is possible to graduate through involvement in a CO-OP program, and according to 1984 data, a significant proportion of graduates in this course (40%) obtained their certificate or diploma in this manner. The majority of graduates were women (80%) and were concentrated in Quebec (40%).

Graduate Trends and Projections

Enrollments, and therefore graduations, depend on the capacity of the specific faculty to absorb new students and on the demand for entrance. Both these factors are influenced, in part, by the current and anticipated labour market situation. Since 1981, the annual number of graduates has averaged 500. The popularity of this course, as indicated by its share of all community college graduates, declined slightly in the late 1970s but has since held fairly constant. If the current popularity of this course and faculty capacities hold over the 1987 to 1995 period, about 600 students should graduate from this course per year.

Destination of Graduates

After graduation, an average proportion of graduates entered the labour force. Although the proportion of those who were unable to find employment was also average, the proportion who found full-time employment was much lower than in other fields of study. Almost 20% of the graduates from this course continued their education, compared with about 10% for all college fields of study.

Occupations

Graduates who were working two years after graduation were employed mostly as radiological technologists and technicians in hospitals. Others had jobs in various other occupations, but were not concentrated in any one of them.

The Course in Retrospect

In general, the graduates had a much more positive attitude about the field of study and their labour market outcome than graduates from other college courses. A significantly larger proportion of them also thought the course matched their current job, and a much smaller proportion deemed they had more qualifications than their job required. In keeping with their average labour market outcome (unemployment rate of 11%) and above-average satisfaction with their job, about 75% of the graduates, compared with 65% of all college graduates, stated they would select the same course if they had to choose again.

Agriculture

Trade/Vocational Programs
Public Trade Schools and Similar Institutions (6 months)

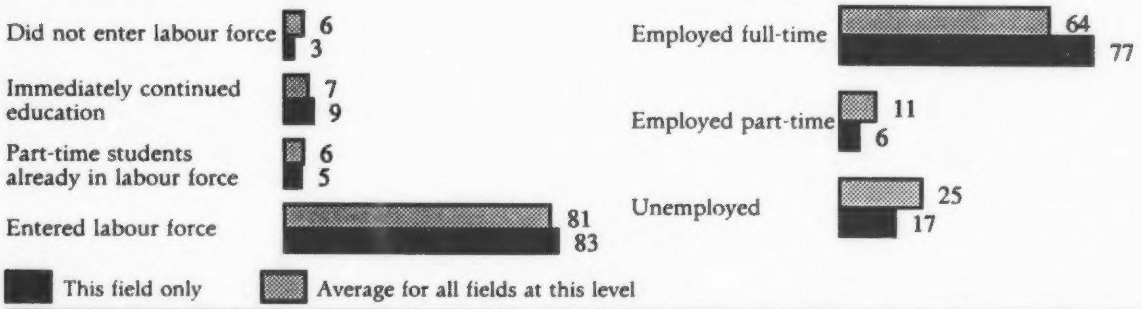
Natural Sciences and Primary Industries

Graduate Trends

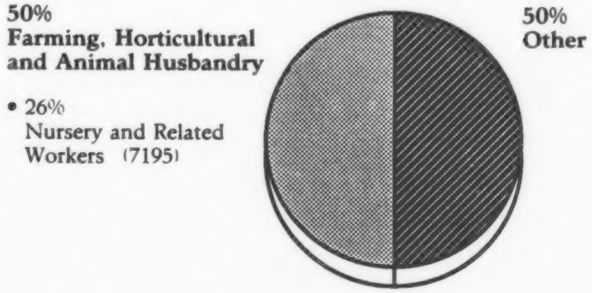
	1983-84*
Number of Graduates	1,058
% of Total Trade/Vocational Graduates	1.4

* This is the only period, since 1977, for which comprehensive and reliable data covering all provinces, territories and fields of study were available. Given this lack of historical data and the recent release of the data for 1983-84, no projections are yet available.

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation



Agriculture

Trade/Vocational Programs
Public Trade Schools and Similar Institutions (6 months)

At this level, the Agriculture field of study refers to training programs in agriculture technology, agricultural business, plant science, crops and horticulture, landscaping and animal sciences. The average length of these programs is about six months, depending on the specific program and institution. The qualifications required to enter the programs vary according to the type of program, the institution and the province. A 1984 survey indicated that on average, graduates in Agriculture had a high-school diploma prior to enrollment. In 1983-1984, students graduated from this course in all provinces except Prince Edward Island and New Brunswick. Women were a minority among the graduates, accounting for only about 15% of them.

Graduate Trends and Projections

For the 1983-1984 period, the number of trade/vocational graduates from this field of study totalled 1,058, representing slightly more than 1% of all trade-level graduates. If the current popularity of this course and the capacity of relevant faculties to absorb new students hold over the 1987 to 1995 period, the average annual number of graduates should decline slightly, owing to the declining size of the corresponding population age group.

Destination of Graduates

A greater-than-average proportion of Agriculture graduates entered the labour force upon completion of their program. Labour market conditions were favourable, as indicated by the lower-than-average proportion who could not find a job. Agriculture graduates were more likely to find full-time employment than other trade-level graduates.

Occupations

Of the graduates working full-time two years after graduation, half were in occupations related to farming, horticulture and animal husbandry. A significant proportion were employed, more specifically, as nursery and related workers, while the rest were working in various other occupations in numbers too small to be reported. Agriculture graduates face competition in the labour market from college graduates in related agricultural fields of study.

The Course in Retrospect

In spite of their lower unemployment rate, trade-level Agriculture graduates were less likely than others to find work related to their training program. This may partly explain why a significantly higher-than-average number considered themselves over-qualified for their job, even though they were satisfied with it. They were also more positive than other graduates about their educational program (about 75% stated they would make the same educational decision over again, compared with 60% of all trade-level graduates).

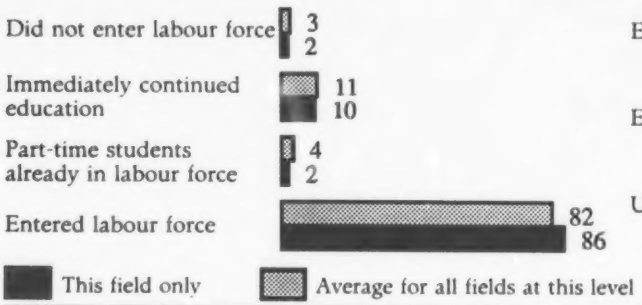
Agriculture

Career Program
Community College (2 years)

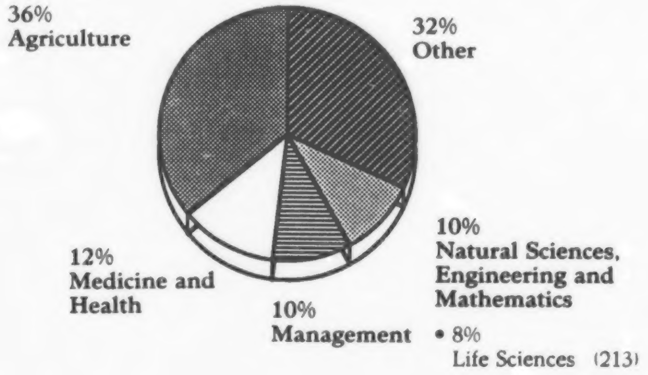
Graduate Trends and Projections

	1977	1981	1985	1986	1995
Number of Graduates	843	1,307	1,487	1,510	1,420
% of Total Community College Graduates	2.3	2.8	2.5	2.5	2.5

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation



Agriculture

Career Program
Community College (2 years)

At the community college level, this field of study includes such programs as agriculture technology, agriculture business, biology, plant sciences and animal sciences. The program prerequisites vary by institution, but in general, candidates must take a diagnostic mathematics test and have completed advanced mathematics and English (French) courses at the high-school level. While not compulsory, high-school biology, chemistry and physics are recommended. The career program is offered in all provinces except Newfoundland, Prince Edward Island, Nova Scotia and Saskatchewan, and generally takes two years, depending on the institution. At some colleges, it is possible to graduate through involvement in a CO-OP program. According to 1984 data, roughly 10% of Agriculture graduates received their certificate or diploma in this manner. The majority of graduates were men and were concentrated in Ontario.

Graduate Trends and Projections

Enrollments, and therefore graduations, depend on the capacity of the specific faculty to absorb new students and on the demand for entrance. Both these factors are influenced, in part, by the current and anticipated labour market situation. Since 1981, the annual number of graduates has averaged 1,400. The popularity of this course, as indicated by its share of all community college graduates, peaked in 1981 and then declined to about the 1977 level. If the course's current popularity and faculty capacities hold over the 1987 to 1995 period, 1,400 students should graduate from this course per year.

Destination of Graduates

Upon graduation, a greater-than-average proportion of college Agriculture graduates entered the labour force. Although an average proportion found employment, more were employed on a full-time basis than graduates from other college courses. Roughly 10% of all Agriculture graduates continued their education after receiving their certificate or diploma.

Occupations

Agriculture graduates working full-time two years after graduation were employed as nursery workers/inspectors/farm machinery operators and crop/livestock workers or they were working in life science occupations (as agriculturalists or biologists) in the Agriculture or Government Service industries. Others were employed in a variety of other occupations, particularly in medicine, health care and management. Graduates seeking employment in agricultural occupations face competition from Agriculture graduates at the trade/vocational and university levels.

The Course in Retrospect

Although a larger proportion of Agriculture graduates than other graduates thought that their current job did not match the field of study and that they had more qualifications than their present job required, more were nonetheless satisfied with their current job. An average proportion of Agriculture graduates (65%) stated they would select the same course if they had to choose again.

Animal and Plant Sciences

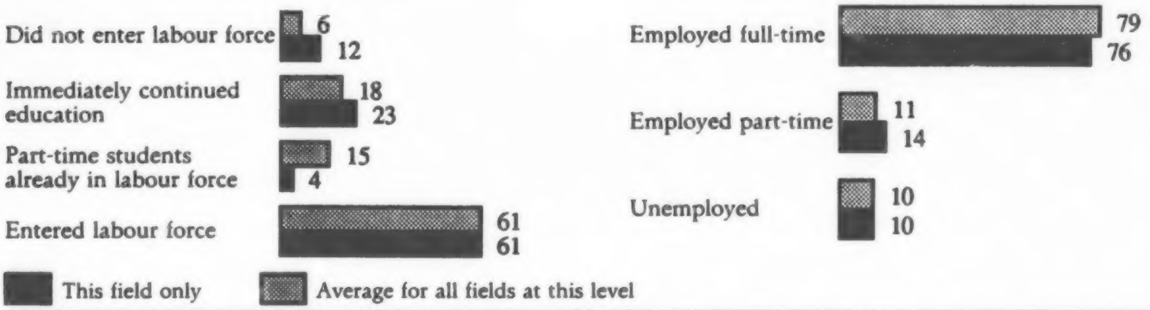
Undergraduate
University (4 years)

Natural Sciences and Primary Industries

Graduate Trends and Projections

	1971	1981	1985	1986	1995
Number of Graduates	180	513	461	490	470
% of Total Undergraduate Degrees	0.2	0.5	0.4	0.4	0.4

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation

Survey results not significant enough to be reported.

Natural Sciences and Primary Industries

Animal and Plant Sciences

Undergraduate
University (4 years)

This field of study consists of such undergraduate programs as poultry science, poultry genetics, plant protection, plant physiology and horticulture. Applicants to these programs must have a high-school diploma with emphasis on mathematics, biology, chemistry and physics. The course of study generally takes four years, depending on the province and the institution, and is available in all provinces except Newfoundland, Prince Edward Island and New Brunswick. Some institutions offer the degree on a CO-OP basis (part of the time in school and part in related employment). The average age at graduation of 1982 graduates in this field of study (24) was slightly lower than the average (26) for this level. An almost equal number of men and women graduated in 1985, women representing about 45% of the graduates.

Graduate Trends and Projections

This field of study became increasingly popular during the 1970s; the number of graduates more than doubled between 1971 and 1981. Since then, about 500 persons per year have graduated from the field, and the relative popularity of this course has remained stable (degrees in Animal and Plant Sciences accounted for 0.4% of all undergraduate qualifications awarded during the first half of this decade). If the course's popularity and the capacity of relevant faculties to absorb new students hold over the 1987 to 1995 period, about 500 students per year should graduate from this course. The number of new graduates competing for related employment is therefore expected to remain about the same over the projection period as it was between 1981 and 1985.

Destination of Graduates

According to 1984 data, the transition from school to the labour market experienced by graduates from this field of study was comparable with that of graduates in other fields. Animal and Plant Sciences graduates, however, were more likely to pursue their formal education. Almost no students took this course on a part-time basis during the final semester of their program.

Occupations

University training in Animal and Plant Sciences prepares students for occupations related to life sciences, such as animal scientist, plant scientist or horticulturist. These occupations are associated with more well-known professional titles such as agriculturist, biologist and life sciences technologist and technician. Other graduates at the college and university levels (from courses such as agriculture and biology) compete with Animal and Plant Sciences graduates for these occupations.

The Course in Retrospect

Although it is impossible to draw conclusions from the statistics on the occupational distribution of graduates in this field of study, other related variables offer some insight on the course. A significantly higher-than-average proportion of graduates reported that their current job was related to the course of study. They were also more likely than other graduates to be satisfied with their job and less likely to consider themselves over-qualified for it.

Agriculture (Animal and Plant Sciences)

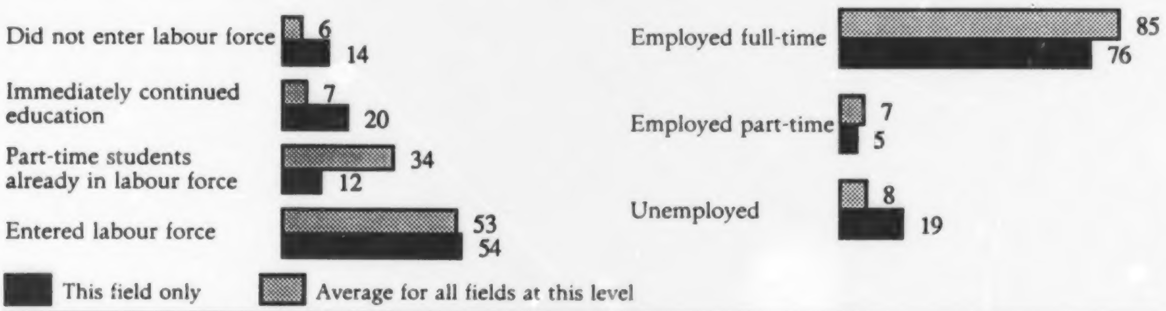
Master's
University (2 years)

Natural Sciences and Primary Industries

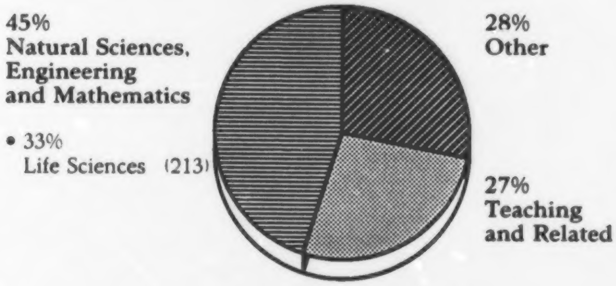
Graduate Trends and Projections

	1971	1981	1985	1986	1995
Number of Graduates	82	107	127	125	115
% of Total Master's Graduates	0.8	0.7	0.8	0.8	0.8

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation



Agriculture (Animal and Plant Sciences)

Master's
University (2 years)

The master's course in this field of study includes programs in such areas as animal husbandry, poultry science, crop science, horticulture, plant protection and weed science. The program prerequisites vary by institution, but in general, candidates must have an honours undergraduate degree, or the equivalent, in this or a closely related field of study (for example, Biology) from a recognized university. (Holders of graduate diplomas and certificates are included with master's graduates.) The diploma or certificate programs are generally shorter than the master's course and may be taken following either an undergraduate or a master's degree.

Almost all the 1985 graduates (98%) received a degree rather than a diploma or certificate. The master's course is offered in all but the Atlantic provinces and usually takes two years, depending on the institution. At some universities, it is possible to graduate through involvement in a CO-OP education program, although only about 5% of the graduates in this field of study received their qualification in this manner, according to 1984 data. The majority of graduates were men (65%) and were concentrated in Quebec (30%).

Graduate Trends and Projections

Enrollments, and therefore graduations, depend on the capacity of the specific faculty to absorb new students and on the demand for entrance. Both these factors are influenced, in part, by the current and anticipated labour market situation. Since 1981, the annual number of graduates has averaged 125. The popularity of this course, as indicated by the proportion of all master's graduates, remained fairly constant between 1971 and 1985 period. If the current popularity of this course and faculty capacities hold over the 1987 to 1995 period, some 100 students should graduate from this course per year. The number of new graduates competing for related employment is therefore expected to be about the same over the projection period as it was from 1981 to 1985.

Destination of Graduates

Upon graduation, an average proportion of graduates became first-time labour force entrants. A far greater-than-average proportion continued their education, and a much smaller proportion had already been in the labour force while attending school part-time. The success of Animal and Plant Sciences graduates in finding employment was not as great as for other master's graduates, as reflected by their 19% unemployment rate.

Occupations

The majority of Animal and Plant Science graduates working full-time two years after graduation were employed in life sciences occupations, a grouping including agriculturists, in the agricultural chemical industry. The remainder were employed in a variety of other occupations, but were not concentrated in any of them.

The Course in Retrospect

A 1984 survey of 1982 graduates suggests that finding employment upon graduation is not the sole criteria by which graduates gauge the success of their educational training. While about 20% of master's graduates in this field could not find employment, a slightly greater-than-average proportion were satisfied with their current job and only 25% considered themselves over-qualified for their job. At least 80% indicated that they could follow the same educational route if they had to make this choice again.

Other Agriculture

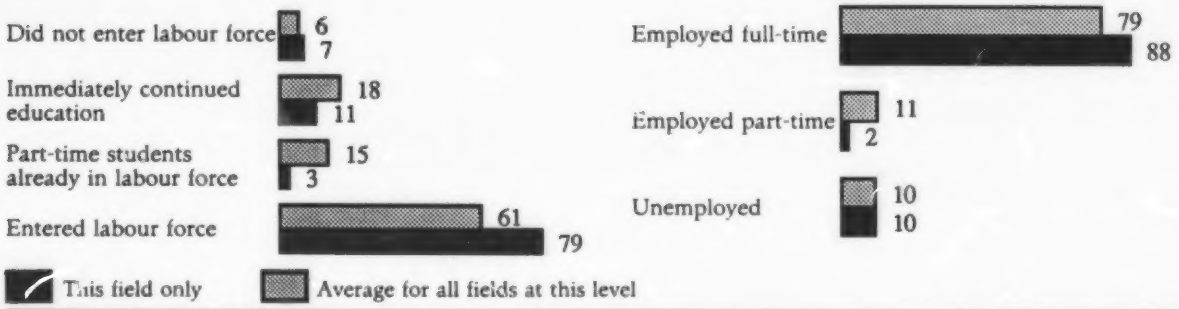
Undergraduate
University (3 years)

Natural Sciences and Primary Industries

Graduate Trends and Projections

	1971	1981	1985	1986	1995
Number of Graduates	542	459	404	420	400
% of Total Undergraduate Degrees	0.7	0.5	0.4	0.4	0.4

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation

33%
Farmers, Horticultural and Animal Husbandry

- 16%
  Farmers (711)
- 11%
  Other Farming (718/719)

25%
Natural Sciences, Engineering and Mathematics

- 11%
  Agriculturists and Related Scientists (2131)

15%
Managerial, Administrative and Related

27%
Other

Natural Sciences and Primary Industries

Other Agriculture

Undergraduate
University (3 years)

This field of study covers all programs related to soil science as well as food science, agricultural science, and dairy science. Candidates for these programs are required to have a high-school diploma with emphasis on mathematics, chemistry, physics and biology (Quebec students applying to a Quebec university must have a Diploma of Collegial Studies). The programs take an average of three years, depending on the institution and the province. Some institutions offer one- or two-year undergraduate programs leading to a certificate or diploma. All provinces except Newfoundland, Prince Edward Island, Nova Scotia and New Brunswick offer undergraduate programs in this field of study. Women represented about 30% of the graduates in 1985.

Graduate Trends and Projections

On an annual average basis, the number of graduates in this major field of study decreased between 1971 and 1985. Since 1981, an average of about 450 students have graduated in this program each year, compared with about 550 graduates during the 1970s. The relative popularity of the course also declined over this period, as its share of the graduating population declined from 0.7% in 1971 to 0.4% in 1985. If the course's current popularity and the capacity of relevant faculties to absorb new students hold over the 1987 to 1995 period, 400 students per year should graduate from this course. The number of new graduates competing for related employment is therefore expected to be about the same over the projection period as it was from 1981 to 1985.

Destination of Graduates

Graduates from this major field of study had a higher rate of participation in the labour force upon completion of their program than other undergraduates. Although they experienced an average unemployment rate, they were more likely to find full-time jobs than graduates from other fields.

Occupations

Two years after graduation, graduates from this field of study were working, for the most part, in occupations related to farming, animal husbandry and natural sciences, a category in which farmers and agriculturists are classified. A greater proportion than average were self-employed. For occupations such as agriculturist, graduates in Other Agriculture face competition from college and university graduates in fields related to agriculture and biology.

The Course in Retrospect

Of the graduates employed full-time, a significantly greater-than-average proportion found the work related to their course of study. They were more likely than other graduates to be satisfied with their current job and less likely to consider themselves over-qualified. About 75% of them, compared with 70% of all undergraduates, stated they would choose the same educational program if they had to make that decision again.

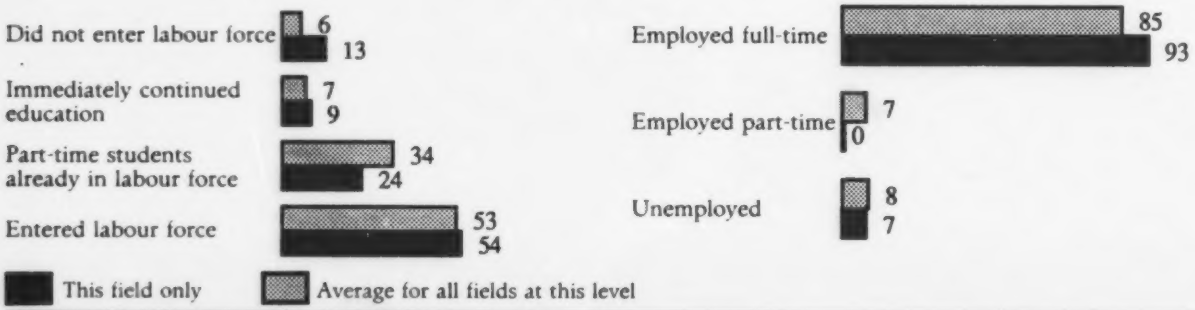
Other Agriculture

Master's
University (3 years)

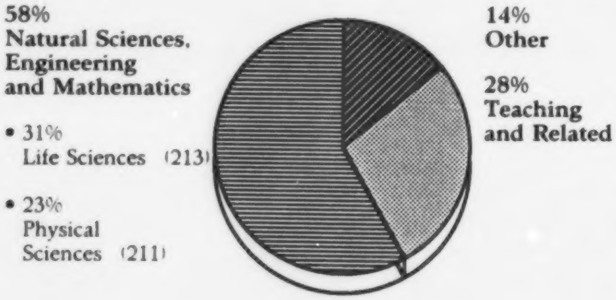
Graduate Trends and Projections

	1971	1981	1985	1986	1995
Number of Graduates	71	84	75	75	65
% of Total Master's Graduates	0.7	0.6	0.4	0.4	0.4

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation



Other Agriculture

Master's
University (3 years)

The field of Other Agricultural Sciences, at the master's level, includes programs in such areas as soil physics, soil chemistry, agricultural entomology, agricultural microbiology, agricultural parasitology and virology, apiculture and dairy science. The program prerequisites vary by institution, but in general, candidates must have an honours undergraduate degree, or the equivalent, in this or a closely related field of study from a recognized university. (Holders of graduate diplomas and certificates are included with master's graduates.) The diploma or certificate programs are generally shorter than the master's program and may be taken following either an undergraduate or a master's degree. Almost all the 1985 graduates (99%) received degrees rather than diplomas or certificates. The master's course of study is offered in all provinces except Newfoundland, Prince Edward Island, Nova Scotia and New Brunswick and usually lasts three years, depending on the institution. In some institutions, it is possible to graduate through involvement in a CO-OP education program. According to 1984 data, roughly 15% of graduates in this field received their qualification in this manner. The majority of graduates were men (65%) and were concentrated in Quebec (25%).

Graduate Trends and Projections

Enrollments, and therefore graduations, depend on the capacity of the specific faculty to absorb new students and on the demand for entrance. Both these factors are influenced, in part, by the current and anticipated labour market situation. Since 1981, the annual number of graduates has averaged 75. The popularity of this course, as indicated by its share of all master's graduates, declined slowly but consistently from 1971 to 1985. If the course's current popularity and faculty capacities hold between 1987 and 1995, about 70 students should graduate from this course per year. The number of new graduates competing for related employment is therefore expected to be slightly lower over the projection period than it was from 1981 to 1985.

Destination of Graduates

Upon graduation, an average proportion of master's graduates in this field of study became first-time labour force entrants, while a significantly greater-than-average proportion chose to either enter the household sector or continue their education. The success of those who looked for a job was about the same as for other master's graduates (7% unemployment) but much lower than for Animal and Plant Science graduates.

Occupations

The majority of graduates in Other Agriculture graduates in working full-time two years after graduation were employed either in life sciences occupations, a grouping which includes agriculturists, or in the education industry (as university teachers). The remainder had jobs in a variety of other occupations, particularly in physical science. Graduates from this course of study who seek employment face job competition primarily from other university or community college graduates in this or a similar field of study.

The Course in Retrospect

A 1984 survey indicated that the transition from school to work was about as successful for 1982 graduates in this field as for other master's graduates, and that significantly fewer of the graduates thought they possessed more qualifications than their current job required. The survey further indicated that, in spite of their low unemployment rate, the high level of correspondence between the field of study and their current job, and the higher-than-average level of satisfaction with their job, a significantly smaller proportion of Other Agriculture graduates (70%) than other master's graduates (80%) would follow the same educational route if they had to make this choice again.

Biology

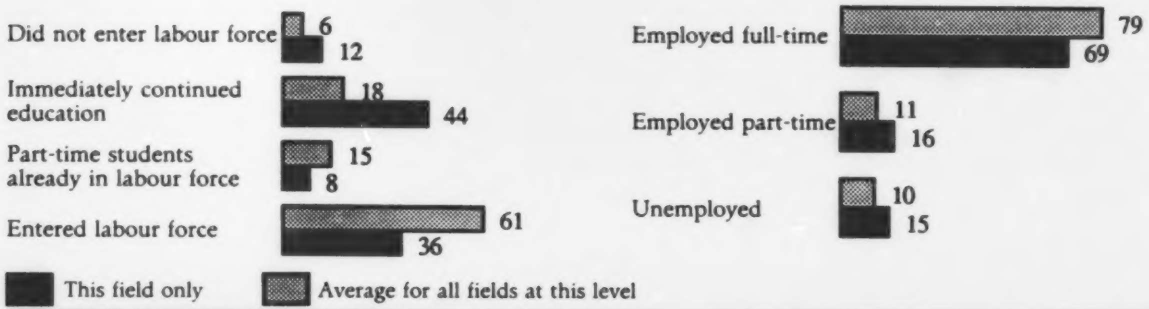
Undergraduate
University (3 years)

Natural Sciences and Primary Industries

Graduate Trends and Projections

	1971	1981	1985	1986	1995
Number of Graduates	1,097	2,442	2,453	2,590	2,520
% of Total Undergraduate Degrees	1.5	2.5	2.2	2.2	2.2

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation

17%
Natural Sciences, Engineering and Mathematics

- 9%
  Life Sciences (213)

16%
Medicine and Health

- 8%
  Medical Laboratory Technologists and Technicians (3156)

16%
Teaching and Related

- 7%
  University Teaching and Related (2719)

51%
Other

Natural Sciences and Primary Industries

Biology

Undergraduate
University (3 years)

At the undergraduate level, the Biology field of study refers to programs in biology, microbiology, molecular biology or genetics. The minimum admission requirement is a high-school diploma with concentrations in biology, chemistry and mathematics. (Quebec students applying to a Quebec institution must have a Diploma of Collegial Studies). Undergraduate programs in Biology are available in all provinces and have an average duration of three years, although this may vary according to the province and the institution. As many women as men graduated in 1982, and the average age of the graduates was 24.

Graduate Trends and Projections

Although annual averages seem to indicate that a constant number of students have been graduating every year since 1971, the number of graduates has, in reality, been fluctuating, as seen by comparing the figures for 1971 and 1981. Increases in the popularity of this field took place mostly during the 1970s when at one point, Biology graduates represented 3.5% of all undergraduates, compared with 2.2% in 1985. If the current popularity of this course and the capacity of relevant faculties to absorb new students hold over the 1987 to 1995 period, 2,600 students should graduate from this course per year.

Destination of Graduates

According to 1984 data, a significantly higher-than-average number of Biology graduates decided to pursue their education, and a less-than-average proportion began looking for jobs. Despite this small participation in the job search, the unemployment rate was higher for graduates in this field than in others, and Biology graduates had more difficulty finding full-time employment.

Occupations

Graduates who did find full-time employment within two years after graduation were working in occupations related to the natural sciences, medicine and health (as medical laboratory technologists and technicians) and teaching (as research assistants).

The Course in Retrospect

Although Biology graduates did not experience overly favourable labour market conditions and were less likely to find occupations related to their course of study, they did report a level of job satisfaction comparable to the level reported in other fields of study. However, a lower-than-average proportion of the graduates stated they would select the same program of study if they had a chance to make that decision again. Master's and PhD graduates in Biology reported somewhat better labour market conditions.

Biology

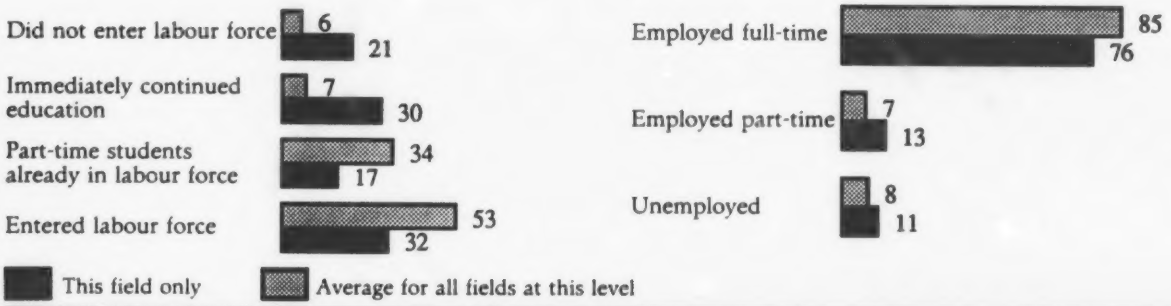
Master's
University (2 years)

Natural Sciences and Primary Industries

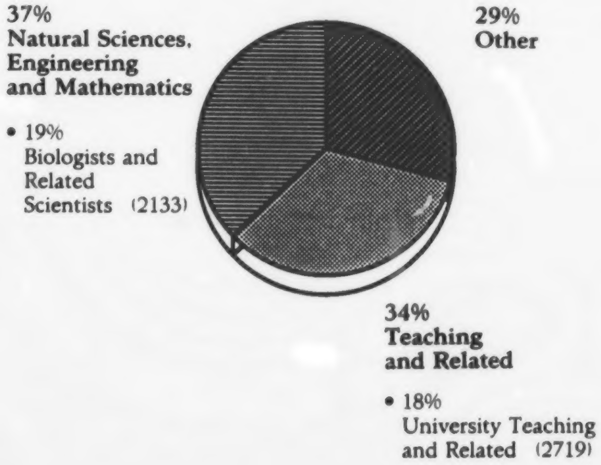
Graduate Trends and Projections

	1971	1981	1985	1986	1995
Number of Graduates	186	208	254	250	225
% of Total Master's Graduates	1.8	1.5	1.5	1.5	1.5

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation



Natural Sciences and Primary Industries

Biology

Master's
University (2 years)

This course of study includes programs in such areas as genetics and microbiology. The program prerequisites vary by institution, but in general, candidates must have an honours undergraduate degree or the equivalent in this or a closely related field of study from a recognized university. (Holders of graduate diplomas and certificates are included with master's graduates.) The diploma or certificate programs are generally shorter than the master's programs and may be taken following either an undergraduate or a master's degree. All the 1985 graduates in this course received degrees rather than diplomas or certificates. The course is offered in all provinces and usually takes two years, depending on the institution. At some universities, students may graduate through involvement in a CO-OP education program, although according to 1984 data, only about 5% of Biology graduates received their qualification in this manner. The majority of graduates were men (65%) and were concentrated in Ontario (35%).

Graduate Trends and Projections

Enrollments, and therefore graduations, depend on the capacity of the specific faculty to absorb new students and on the demand for entrance. Both these factors are influenced in part by the current and anticipated labour market situation. Since 1981, the annual number of graduates has averaged 225. The popularity of this course, as indicated by its share of all master's graduates, declined slowly and consistently between 1971 and 1981, but has held constant since then. If the course's current popularity and faculty capacities hold over the 1987 to 1995 period, 200 students should graduate from this course per year.

Destination of Graduates

Upon graduation, a far lower-than-average proportion of Biology master's graduates became first-time labour force entrants, a statistic resulting largely from the much greater-than-average proportion who continued their education or entered the household sector of the economy. The success of those who sought employment was slightly better than for other master's graduates.

Occupations

The majority of Biology graduates working full-time two years after graduation were employed as biologists or as assistants to university professors. The rest were employed in various other occupations but were not concentrated in any specific one. Graduates of this course face job competition primarily from other Biology graduates and from Agriculture graduates at the university and community college levels.

The Course in Retrospect

A 1984 survey indicated that although the transition from school to work was slightly less successful for 1982 graduates in this field than for other master's graduates, fewer Biology graduates thought they possessed more qualifications than their current job required. The survey further indicated that a greater-than-average proportion thought their job matched the field of study and were satisfied with their job. An average proportion of graduates indicated that they would follow the same educational route if they had to make this choice again.

Biology

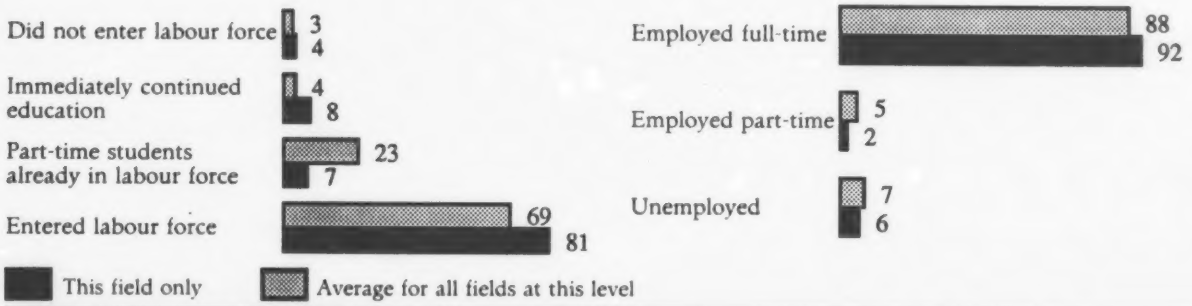
Doctorate
University (4 years)

Natural Sciences and Primary Industries

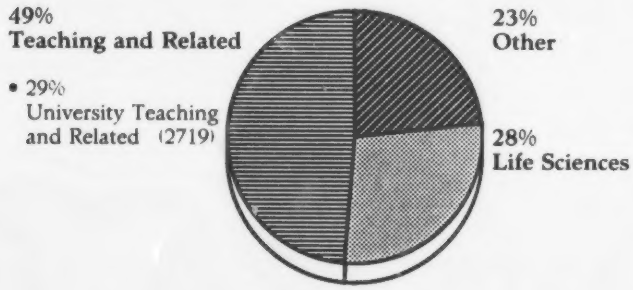
Graduate Trends and Projections

	1971	1981	1985	1986	1995
Number of Graduates	76	70	94	100	105
% of Total Doctorate Graduates	4.7	3.9	4.7	4.7	4.7

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation



Biology

Doctorate
University (4 years)

Areas of specialization such as genetics and microbiology are included in this field of study. Graduates from a recognized university who have been awarded a master's degree or the equivalent in one of the biological or physical sciences are usually the applicants considered for admission into this program. Some institutions may consider candidates with a high standing in an honours bachelor's program or the equivalent, in one of the biological or physical sciences. The course of study takes an average of four years and is offered in all provinces except Prince Edward Island. Students tend to finish their program at a relatively young age. According to 1984 data, the proportion of graduates who were enrolled on a part-time basis during the last semester before graduation was much smaller than in other fields.

Graduate Trends and Projections

The number of PhD Biology graduates has been fairly stable since 1971. On an annual average basis, the number of graduates increased slightly during the 1970s and the early 1980s. The relative popularity of this program declined markedly between 1971 and 1981, but since then has returned to the 1971 level. If the current popularity of this course and the capacity of relevant faculties to absorb new students hold over the 1987 to 1995 period, 100 students should graduate from this course per year.

Destination of Graduates

The majority of graduates from this program entered the labour force upon completion of their degree, although a higher-than-average proportion pursued their education. Those who entered the labour force were more likely than other doctoral graduates to be employed on a full-time basis. Their unemployment rate was comparable to the rate for other PhD graduates.

Occupations

Half of the graduates working full-time two years after graduation were employed in the teaching field, mostly as university teachers. Another significant proportion found work in occupations related to life sciences, (for example, as biologists and life sciences specialists).

The Course in Retrospect

All employed graduates found their job to be related to the field of study and all were satisfied with their job. The Biology field is one of the few in which only a small number of graduates reported they had more education than required for their job. This may partly explain why a higher-than-average proportion of graduates said they would select the same educational program if they had to make the decision again.

Environmental and Conservation Technologies

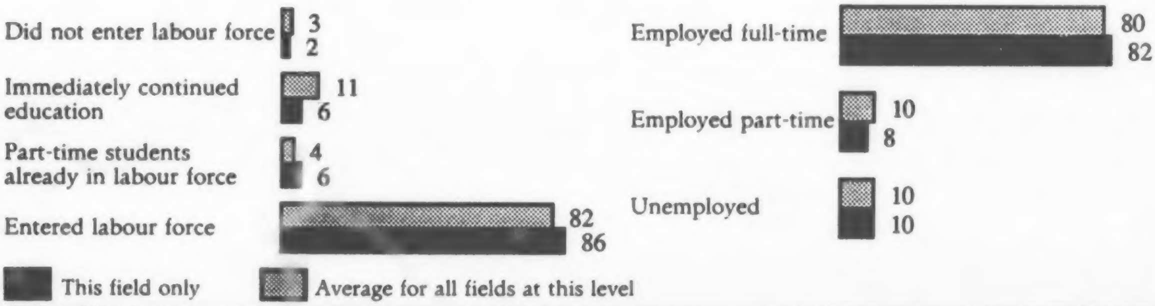
Career Program
Community College (2 years)

Natural Sciences and Primary Industries

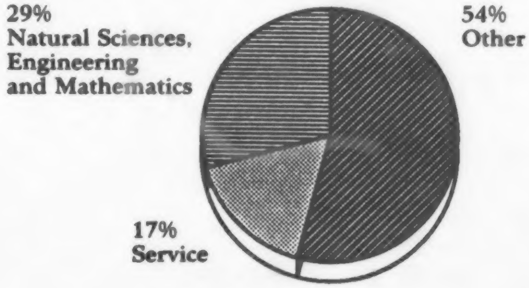
Graduate Trends and Projections

	1977	1981	1985	1986	1995
Number of Graduates	466	564	663	675	630
% of Total Community College Graduates	1.2	1.2	1.1	1.1	1.1

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation



Environmental and Conservation Technologies

Career Program
Community College (2 years)

This field of study includes programs in environmental control/protection (for example, pollution control), land resources, wildlife and forest conservation, water sciences and air purification. Program prerequisites vary by institution, but in general, candidates must take a diagnostic mathematics test, have completed senior courses in English (French) and mathematics and have at least two science credits at the senior level, preferably in biology, chemistry or physics. The course is offered in all provinces except Newfoundland and generally takes two years, depending on the institution. In some institutions it is possible to graduate through involvement in a CO-OP program; however, according to 1984 data, only a small percentage (5%) of graduates in this course of study received their certificate or diploma in this manner. The majority of graduates were men and were concentrated in Ontario.

Graduate Trends and Projections

Enrollments, and therefore graduations, depend on the capacity of the specific faculty to absorb new students and on the demand for entrance. Both these factors are influenced, in part, by the current and anticipated labour market situation. Since 1981, the annual number of graduates has averaged 600. The popularity of this course, as indicated by the proportion of all community college graduates, held fairly constant between 1977 and 1986. If the course's current popularity and faculty capacities hold over the 1987 to 1995 period, 600 students should graduate from this course per year.

Destination of Graduates

Upon graduation, a smaller-than-average proportion of graduates in Environmental and Conservation Technologies chose to continue their education; a larger-than-average proportion entered the labour force. The success of those who looked for a job was about the same as for graduates from other college fields of study, although slightly more graduates in this field found full-time work.

Occupations

The majority of Environmental and Conservation Technologies graduates working full-time two years after graduation had jobs in the natural sciences, engineering, mathematics and services (fire fighting and guides) within provincial government protective services. The remainder were employed in a variety of other occupations in statistically insignificant numbers.

The Course in Retrospect

Although graduates in Environmental and Conservation Technologies were as successful as most other college graduates in the transition from school to work, they did express some reservations about their job. A greater proportion of them thought that their job did not match their field of study and that they were over-qualified for the job. In spite of their significantly greater-than-average dissatisfaction, an average proportion (65%) stated they would still select the same course if they had to choose again.

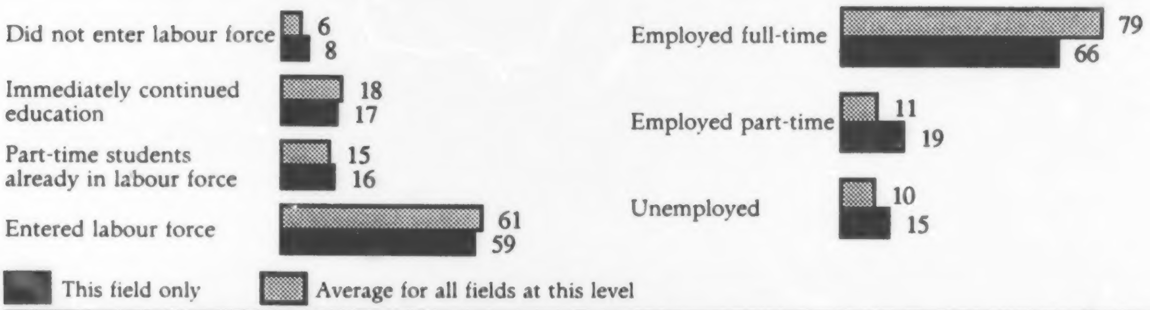
Food and Household Sciences

Undergraduate
University (4 years)

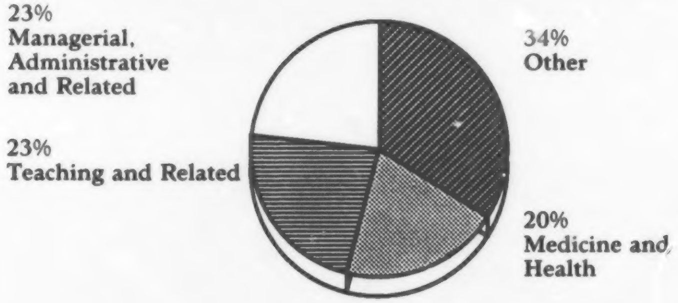
Graduate Trends and Projections

	1971	1981	1985	1986	1995
Number of Graduates	629	823	798	840	820
% of Total Undergraduate Degrees	0.9	0.8	0.7	0.7	0.7

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation



Food and Household Sciences

Undergraduate
University (4 years)

This field of study includes such programs as nutrition, consumer studies, family studies as well as food science and household science. Applicants to these programs must have a high-school diploma with emphasis on biology, chemistry, mathematics and physics. (Quebec students applying to a Quebec university must have a Diploma of Collegial Studies). The programs are offered in all provinces and take about four years, depending on the province and the institution. Students who graduated from this field in 1982 were, on average, 24 years old. Most graduates are women: in 1985 they represented 98% of the graduating population.

Graduate Trends and Projections

The number of graduates in this major field of study increased rapidly during the late 1970s but has since declined steadily. The relative popularity of the field, indicated by the proportion of all undergraduates, has followed a similar pattern. The proportion of Food and Household Science graduates represented 0.7% of all undergraduate qualifications in 1986, compared with 1.4% in 1976. Since 1981, the average number of students graduating in this field was about 800. If the current popularity of this course and the capacity of relevant faculties to absorb new students hold over the 1987 to 1995 period, 800 students per year should graduate from this course. The number of new graduates competing for related employment is therefore expected to be about the same over the projection period as it was between 1981 and 1985.

Destination of Graduates

Food and Household Sciences graduates entered the labour force at a rate comparable to the average for this level. About 15% of the graduates continued their formal education. Those who looked for jobs were not too successful, as indicated by a 15% unemployment rate and the higher-than-average percentage who were employed, either by design or circumstance, on a part-time basis.

Occupations

Two years after graduation, graduates of this course of study who were employed full-time were working in management and administrative occupations, in the teaching field or in occupations related to medicine and health, such as dieticians and nutritionists.

The Course in Retrospect

Although a significantly higher-than-average proportion of employed graduates considered themselves over-qualified for their current job, they reported a level of satisfaction with their job roughly equivalent to that of other graduates. Similarily, the majority found their job related to their program of study. Only about 55% of the graduates, compared with 70% of all undergraduates, stated they would make the same educational choice if they had the opportunity to make that decision again.

Food Processing Technologies

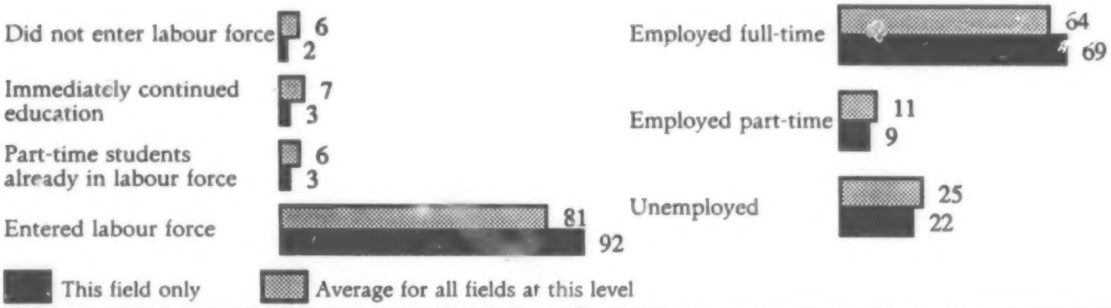
Trade/Vocational Programs
Public Trade Schools and Similar Institutions (6 months)

Graduate Trends

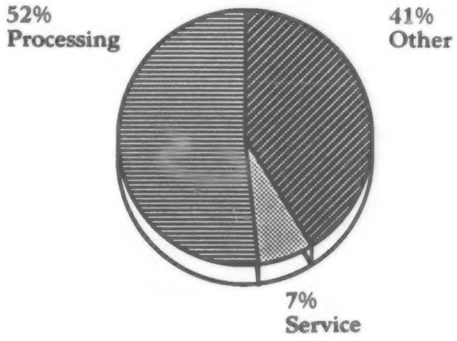
	1983-84*
Number of Graduates	1,099
% of Total Trade/Vocational Graduates	1.5

* This is the only period, since 1977, for which comprehensive and reliable data covering all provinces, territories and fields of study were available. Given this lack of historical data and the recent release of the data for 1983-84, no projections are yet available.

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation



Food Processing Technologies

Trade/Vocational Programs
Public Trade Schools and Similar Institutions (6 months)

This field of study covers such training programs as meat processing, dairy products processing, marine products processing and other food processing. Although the prerequisites for these programs vary according to the specific type of program (pre-employment or skill upgrading), the institution and the province, a 1984 survey indicated that most graduates had completed secondary school prior to enrollment. The course lasts on average about six months and is offered in all provinces except New Brunswick. Men were in the majority in this field of study in 1982, accounting for 90% of the graduating population.

Graduate Trends and Projections

Approximately 1,100 successful completions were reported in the Food Processing Technologies field of study for the 1983-1984 period, which represents more than 1% of all successful completions at this level. If current conditions continue, the number of completions should vary only slightly over the projection period.

Destination of Graduates

According to 1984 data, graduates from this field entered the labour force in a proportion significantly higher than the average for the trade level. Those who looked for a job had a slightly better chance than graduates from other fields of finding a full-time job; fewer remained unemployed.

Occupations

A 1984 survey indicated that graduates working full-time two years after graduation were employed in processing and service occupations. However, they were distributed throughout these occupations in numbers too small to be analysed here.

The Course in Retrospect

Generally, trade/vocational graduates from this field of study reported an average level of job satisfaction, and a significantly lower-than-average proportion of them thought they were over-qualified for their current job. An average proportion indicated that they would make the same educational decision if they had to choose again.

Forestry

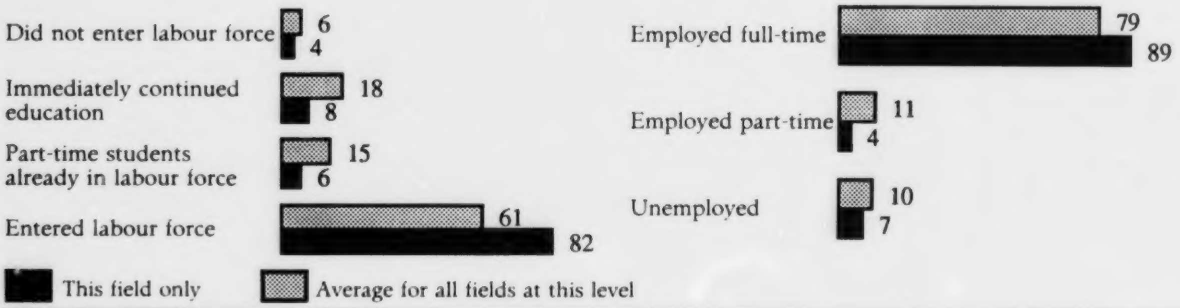
Undergraduate
University (4 years)

Natural Sciences and Primary Industries

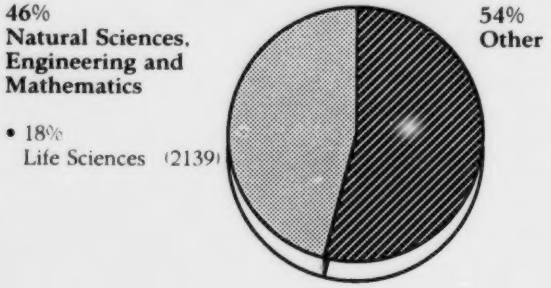
Graduate Trends and Projections

	1971	1981	1985	1986	1995
Number of Graduates	240	386	383	400	390
% of Total Undergraduate Degrees	0.3	0.4	0.3	0.3	0.3

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation



Natural Sciences and Primary Industries

Forestry

Undergraduate
University (4 years)

This field of study offers such undergraduate programs as forest ecology, forest harvesting, forest resources management, forest wildlife, wood science and industry and forestry. Candidates for this field of study must have a high-school diploma with emphasis on chemistry, biology, mathematics and physics. (Quebec students applying to a Quebec institution must have a Diploma of Collegial Studies covering the same subjects.) Undergraduate programs in Forestry are offered in New Brunswick, Quebec, Ontario, Alberta and British Columbia and last, on average, four years, although this varies according to the province and the institution. Forestry continues to attract mostly men; in 1985 women represented only 20% of the graduates.

Graduate Trends and Projections

The relative popularity of this field of study has not changed much over the years; in 1981, degrees in forestry accounted for approximately 0.4% of all undergraduate qualifications awarded. Since 1981, an annual average of 400 persons graduated from this major field of study, compared with an annual average of 339 during the 1970s. If the current popularity of this course and the capacity of relevant faculties to absorb new students hold over the 1987 to 1995 period, about 400 students should graduate from this course per year. The number of new graduates competing for related employment is therefore expected to be about the same over the projection period as it was between 1981 and 1985.

Destination of Graduates

Forestry undergraduates entered the labour force upon completion of their program in a significantly higher proportion than average. Those who looked for work did not have too much difficulty in finding jobs; 90% of them found full-time employment, and their unemployment rate was lower than average.

Occupations

The majority of graduates working full-time two years after graduation were employed in occupations related to the natural sciences, engineering and mathematics, especially in life science occupations. Others were working in a variety of occupations, but were not concentrated in any specific one.

The Course in Retrospect

Although a higher-than-average proportion of graduates thought their job corresponded to their course of study, they were more likely than other graduates at this level to consider themselves over-qualified for the job. Similarily, a lower-than-average proportion reported satisfaction with their job.

Forestry

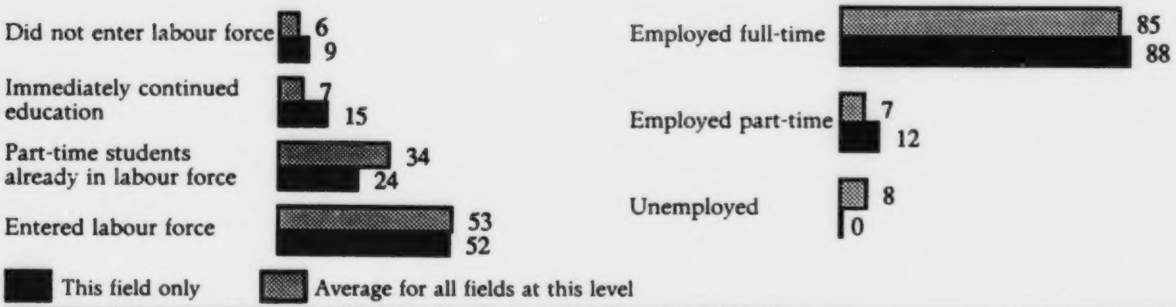
Master's
University (3 years)

Natural Sciences and Primary Industries

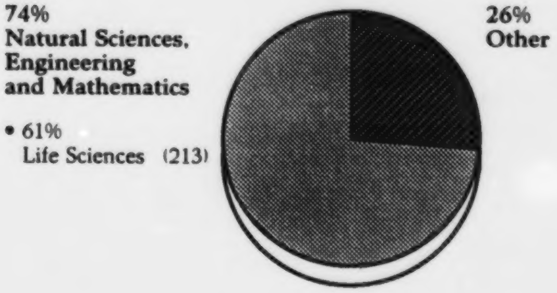
Graduate Trends and Projections

	1971	1981	1985	1986	1995
Number of Graduates	40	53	68	65	60
% of Total Master's Graduates	0.4	0.4	0.4	0.4	0.4

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation



Natural Sciences and Primary Industries

Forestry

Master's
University (3 years)

Forestry includes programs in such areas as dendrology, forest ecology, forest harvesting, logging, forest management and forest/wildlife management. The entrance prerequisites for this field of study vary by institution, but in general, candidates must have an honours undergraduate degree, or the equivalent, in this or a closely related field of study from a recognized university. (Holders of graduate diplomas and certificates are included with master's graduates.) The diploma or certificate programs are generally shorter than the master's course and may be taken following either an undergraduate or a master's degree. All the 1985 graduates in this field received degrees rather than diplomas or certificates. The master's course is offered in all provinces except Newfoundland, Prince Edward Island, Nova Scotia, Manitoba and Saskatchewan and usually takes three years, depending on the institution. At some institutions it is possible to graduate through involvement in a CO-OP program, although only about 5% of the graduates in this field received their qualification in this manner. The majority of graduates were men (80%) and were concentrated in Quebec (35%).

Graduate Trends and Projections

Enrollments, and therefore graduations, depend on the capacity of the specific faculty to absorb new students and on the demand for entrance. Both these factors are influenced, in part, by the current and anticipated labour market situation. Since 1981, the annual number of graduates has averaged 50. The popularity of this course, as indicated by its share of all master's graduates, remained at about the same level over the 1971 to 1985 period. If the course's current popularity and faculty capacities hold over the 1987 to 1995 period, 60 students per year should graduate from this course.

Destination of Graduates

Upon graduation, about the same proportion of Forestry graduates as other master's graduates became first-time labour force entrants. A significantly greater-than-average proportion continued their education, and a significantly lower-than-average proportion were already in the labour force and had been attending school part-time. The success of those who looked for employment was significantly better than for other master's graduates: all of them found jobs.

Occupations

The majority of Forestry graduates who were employed full-time two years after graduation were working in the life sciences occupations, which include agriculturists and biologists. The remainder were working in various other occupations but were not concentrated in any one of them. Graduates of this course who seek employment face competition primarily from other university graduates in this field as well as from community college graduates with a diploma or certificate in Forestry Technology.

The Course in Retrospect

A 1984 survey indicated that the transition from school to work was dramatically more successful for 1982 graduates in this field than for other master's graduates, and that a dramatically lower-than-average proportion of them thought they possessed more qualifications than their current job required. The survey further indicated that all graduates agreed that their job matched the field of study, and almost all were satisfied with their job. Although their labour market transition was significantly more successful than that of other master's graduates, and their level of job satisfaction higher, only an average proportion of graduates stated they would follow the same educational route if they had to make this choice again. This apparent contradiction may be explained by the fact that the graduates' average annual salary was almost $7,000 lower than the average for this level.

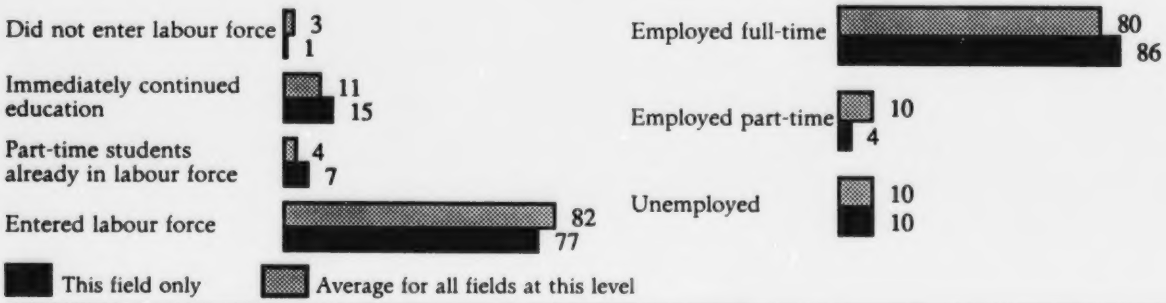
Forestry Technologies

Career Program
Community College (2 years)

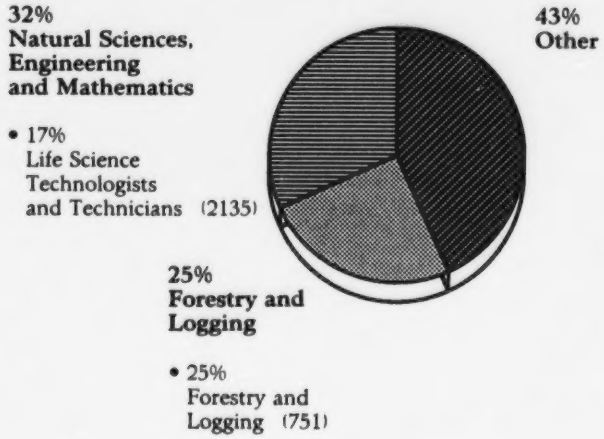
Graduate Trends and Projections

	1977	1981	1985	1986	1995
Number of Graduates	653	729	635	645	605
% of Total Community College Graduates	1.7	1.6	1.1	1.1	1.1

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation



Forestry Technologies

Career Program
Community College (2 years)

At this level, Forestry includes training to become forest managers and rangers, and in such areas as forest research, forestry and silviculture. The entrance prerequisites vary from institution to institution, but in general, candidates must have completed English (French), mathematics and two science credits at the senior high-school level. The course is offered in all provinces except Prince Edward Island, Manitoba and Saskatchewan and generally takes two years, depending on the institution. In some institutions, it is possible to graduate through involvement in a CO-OP program. According to 1984 data, roughly 10% of the graduates in this field obtained their certificate or diploma in this manner. The majority of graduates were men (90%) and were concentrated in Quebec (35%).

Graduate Trends and Projections

Enrollments, and therefore graduations, depend on the capacity of the specific faculty to absorb new students and on the demand for entrance. Both these factors are influenced, in part, by the current and anticipated labour market situation. Since 1981, the annual number of graduates has averaged 700. The popularity of this course, as indicated by its proportion of all community college graduates, remained constant between 1977 and 1981 but has declined slightly since that time. If the course's current popularity and faculty capacities hold over the 1987 to 1995 period, 600 students per year should graduate from this course. The number of new graduates competing for related employment is therefore expected to be lower over the projection period than it was from 1981 to 1985.

Destination of Graduates

Upon graduation, a slightly lower-than-average proportion of Forestry Technologies graduates entered the labour force, a statistic resulting from the slightly greater-than-average proportion who continued their education. Although Forestry graduates were about as successful as other college graduates in finding employment, a greater proportion of them found full-time employment.

Occupations

Most of the Forestry Technologies graduates who were employed full-time two years after graduation were working as life science technologists and technicians (biology, zoology and fish-farming) in the protective service (forest ranger) and forestry service industries. The remainder were employed in various other occupations, particularly in forestry and logging occupations. Graduates of this course who seek employment as life science technologists and technicians face competition primarily from college graduates in resource processing and agriculture and from university graduates with a bachelor's degree in forestry and biology.

The Course in Retrospect

Although the labour market outcome was about the same for Forestry Technologies graduates as for other college graduates, Forestry graduates were generally negative about their current job and the field of study. A significantly lower proportion of them thought their present job matched the field of study, and a higher-than-average proportion believed they possessed more qualifications than their job required. A slightly lower-than-average proportion stated they would select the same course of study if they had to choose again.

Other Primary Technologies

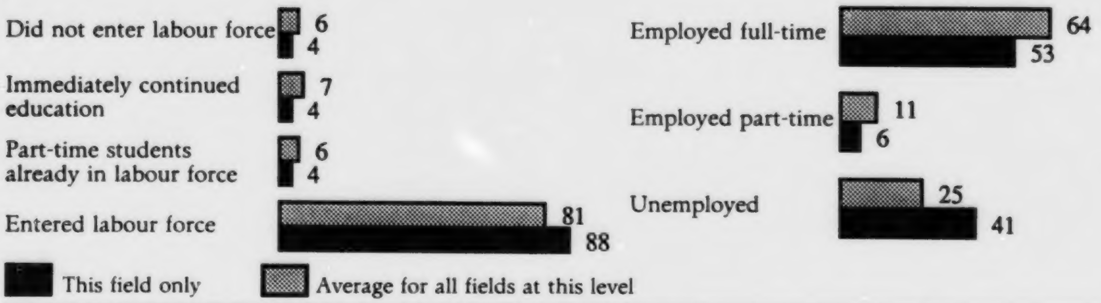
Trade/Vocational Programs
Public Trade Schools and Similar Institutions (5 months)

Graduate Trends

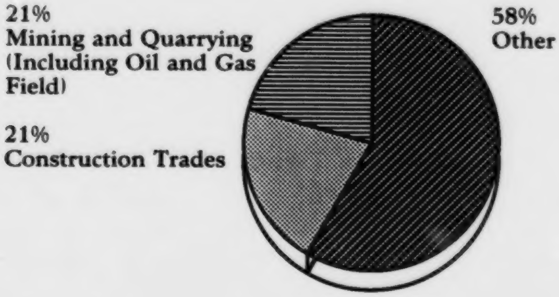
	1983-84*
Number of Graduates	1.156
% of Total Trade/Vocational Graduates	1.5

* This is the only period, since 1977, for which comprehensive and reliable data covering all provinces, territories and fields of study were available. Given this lack of historical data and the recent release of the data for 1983-84, no projections are yet available.

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation



Other Primary Technologies

Trade/Vocational Programs
Public Trade Schools and Similar Institutions (5 months)

The training programs in this field of study cover such disciplines as geology and prospecting, drilling, extractive technologies and fishing technologies. The prerequisites for admittance to these programs vary by type of program, by institution and by province. Students who were enrolled in these programs in 1982 had, on average, completed secondary school prior to enrollment. The course of study lasts approximately five months and is offered in all provinces except Newfoundland, Manitoba and Saskatchewan. Most students in the course are men (93%).

Graduate Trends and Projections

The number of successful completions reported in this field totalled 1,156 in 1983-1984, which represents more than 1% of all completions at this level. If the relative popularity of this course and the capacity of specific faculties to absorb new students hold over the 1987 to 1995 period, the average annual number of graduates should decline slightly, owing to the declining size of the corresponding population age group.

Destination of Graduates

Upon graduation, a higher-than-average proportion of graduates entered the labour force. Unfortunately, they faced a less-than-favourable labour market, as a significantly higher-than-average proportion could not find work. Even among those who did find jobs, there was a less-than-averange chance of finding full-time employment.

Occupations

Of the graduates who were employed full-time, a significant proportion had found work in occupations related to mining and quarrying (oil and gas fields) as well as in the construction trades. Others were employed in various occupations in numbers too small to be reported.

The Course in Retrospect

Not only did graduates in this field have a high level of unemployment, but those who were working were also unlikely to have jobs related to their training program. Similarly, the majority thought they had more education than was required by their current job. A greater-than-average proportion of graduates stated they would be ready to take the same program if they had to decide again.

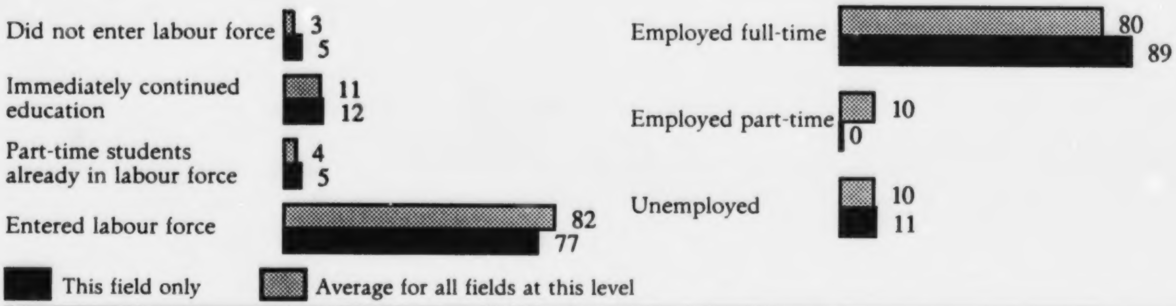
Other Primary Technologies

Career Program
Community College (2 years)

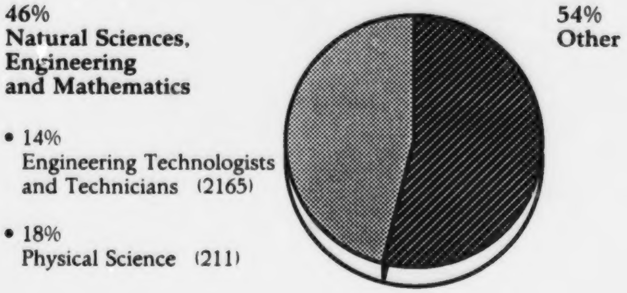
Graduate Trends and Projections

	1977	1981	1985	1986	1995
Number of Graduates	205	369	499	505	475
% of Total Community College Graduates	0.5	0.8	0.9	0.9	0.9

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation



Other Primary Technologies

Career Program
Community College (2 years)

This field of study includes such areas of study as mining technologies (geology and prospecting, drilling and extracting), fish technologies, hunting and trapping and petroleum resource technologies. The prerequisites for entrance into this field of study vary by institution, but in general, candidates must have achieved high standing in advanced English (French), mathematics and chemistry or physics at the high-school level. The course is offered in all provinces except Prince Edward Island, New Brunswick, Manitoba and Saskatchewan and generally takes two years, depending on the institution. At some colleges, it is possible to graduate through involvement in a CO-OP program. According to 1984 data, roughly 10% of the graduates obtained their certificate or diploma in this manner. The majority of graduates were men and were concentrated in Alberta.

Graduate Trends and Projections

Enrollments, and therefore graduations, depend on the capacity of the specific faculty to absorb new students and on the demand for entrance. Both these factors are influenced, in part, by the current and anticipated labour market situation. Since 1981, the annual number of graduates has averaged 500. The popularity of this course, as indicated by its share of all community college graduates, increased between 1977 and 1981 but has since held fairly constant. If the course's current popularity and faculty capacities hold over the 1987 to 1995 period, about 500 students should graduate from this course per year. The number of new graduates competing for related employment is therefore expected to be about the same over the projection period as it was between 1981 and 1985.

Destination of Graduates

After graduation, a smaller proportion of graduates from this field than from other college fields of study entered the labour force. An average proportion of those who looked for work found employment, and a significantly larger proportion of graduates found full-time employment, although their unemployment rate was similar to that of other college graduates. Of the graduates who did not enter the labour force, about 70% continued their education.

Occupations

Most Other Primary Technologies graduates who were working full-time two years after graduation were employed as engineering technologists and technicians in the crude petroleum and natural gas industry. The remainder had jobs in various other occupations, particularly in the physical sciences. Graduates of this course who seek employment as engineering technologists and technicians face competition primarily from graduates of the Electrical/Eelectronic Technologies field of study at the college and trade/vocational levels.

The Course in Retrospect

Although the transition from school to work was as successful for Other Primary Technologies graduates as it was for most other college graduates, a significantly larger-than-average proportion of graduates in this field thought that their present job did not match the field of study and that they possessed more qualifications than their current employment required. This general dissatisfaction is reflected in the fact that only about 55% of the graduates, compared with 65% of all college graduates, would make the same educational choice if they had to decide again.

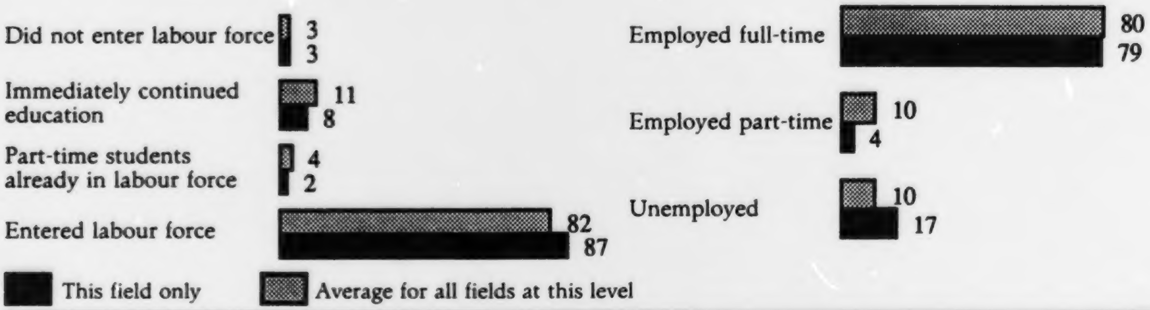
Resource Processing Technologies

Career Program
Community College (2 years)

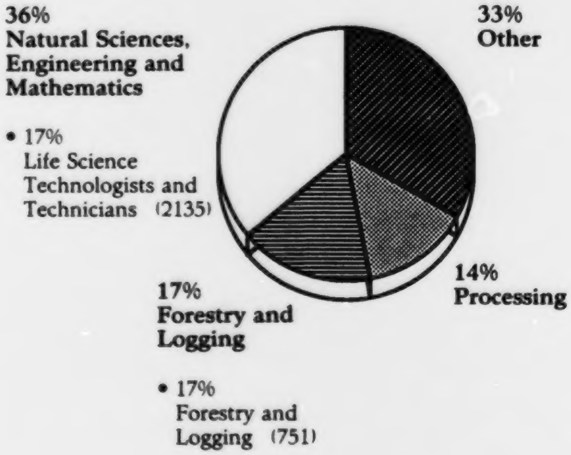
Graduate Trends and Projections

	1977	1981	1985	1986	1995
Number of Graduates	114	223	183	185	175
% of Total Community College Graduates	0.3	0.5	0.3	0.3	0.3

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation



Resource Processing Technologies

Career Program
Community College (2 years)

This field of study includes such areas of study as pulp and paper, wood products, metal, petroleum refining, food, meat, poultry and egg, dairy products and fruit and vegetables. The prerequisites for entrance into the field vary by institution, but in general, candidates must take a diagnostic mathematics test and have completed senior high-school courses in English (French), mathematics, chemistry, biology and physics. The course is offered in all provinces except Nova Scotia, New Brunswick, Manitoba and Saskatchewan and generally takes two years, depending on the institution. In some institutions, it is possible to graduate through involvement in a CO-OP program. According to 1984 data, roughly 15% of Resource Processing graduates obtained their certificate or diploma in this manner. The majority of these graduates were men and were concentrated in Ontario.

Graduate Trends and Projections

Enrollments, and therefore graduations, depend on the capacity of the specific faculty to absorb new students and on the demand for entrance. Both these factors are influenced, in part, by the current and anticipated labour market situation. Since 1981, the annual number of graduates has averaged 200. The popularity of this course, as indicated by its share of all community college graduates, increased slightly between 1977 and 1981 but had returned to the 1977 level by 1985. If the course's current popularity and faculty capacities hold over the 1987 to 1995 period, about 200 students should graduate from this course per year. The number of new graduates competing for related employment is therefore expected to be about the same over the projection period as it was betweem 1981 and 1985.

Destination of Graduates

After graduation, a larger proportion of graduates from this field than from other college fields of study looked for employment. However, they were significantly less successful than the majority of other community college graduates. Of those who did not enter the labour force, about 75% continued their education.

Occupations

Resource Processing graduates who were working full-time two years after graduation were employed mostly as life science technologists and technicians (agriculture, biology, fish and food) in provincial governments or in the forestry service industry. Others had jobs in various other occupations, particularly in forestry, logging and processing. Graduates of this course who seek employment as life science technologists and technicians face competition from other college graduates in forest technologies and agriculture and from university graduates with a bachelor's degree in forestry or biology.

The Course in Retrospect

Although the transition from school to work was significantly less successful for Resource Processing graduates than for other college graduates, the graduates in this field were more positive about their jobs. A significantly greater-than-average proportion thought their present job matched the field of study and were satisfied with their job. A further indicator of job contentment was the fact that a proportion, significantly lower than average, reported they possessed more skills than their current job required. A slightly lower-than-average proportion of graduates stated they would follow the same educational route if they had to choose again.

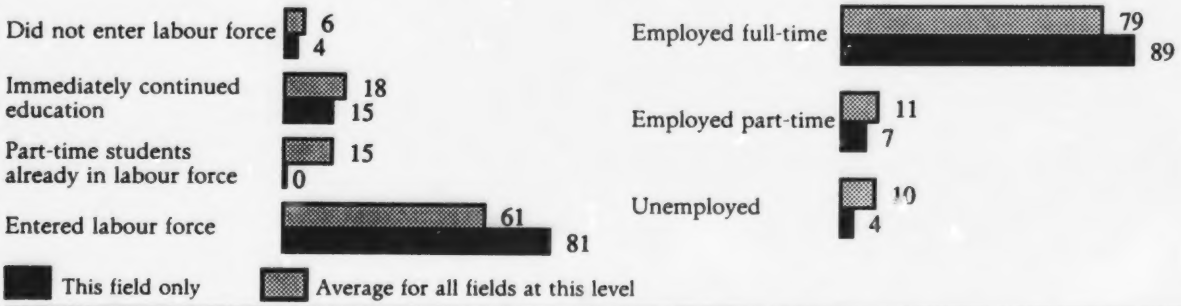
Veterinary Sciences and Medicine

Undergraduate
University (4 years)

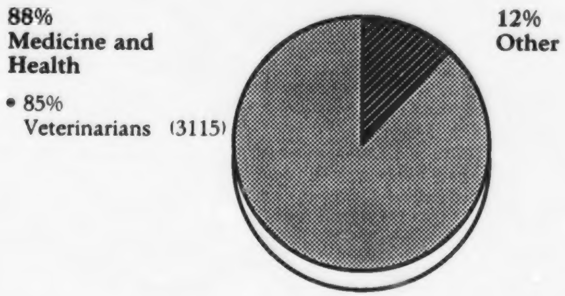
Graduate Trends and Projections

	1971	1981	1985	1986	1995
Number of Graduates	132	247	255	270	260
% of Total Undergraduate Degrees	0.2	0.2	0.2	0.2	0.2

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation



Veterinary Sciences and Medicine

Undergraduate
University (4 years)

At this level, Veterinary Sciences and Medicine covers only the professional program in faculties of veterinary medicine. Candidates must have completed high school with good standing in appropriate courses, such as biology, chemistry, mathematics and physics. (Quebec students applying to a Quebec university must have a Diploma of Collegial Studies.) In some cases, as enrollment is generally limited, selection is based on standings as well as interviews and references. The program of study is offered only in Prince Edward Island, Quebec, Ontario, Saskatchewan and Alberta and takes an average of four years, depending on the province. At some institutions, it is possible to obtain the qualification through involvement in a CO-OP program (part of the time in school and part in related employment). Students who completed the program in 1982 were, on average, 26 years old. Women accounted for approximately half the students enrolled in the field.

Graduate Trends and Projections

Particularly in this field, enrollments, and therefore graduations, depend on the capacity of the specific faculty to absorb new students. Although the number of graduates increased steadily during the 1970s, it has stayed at relatively the same level since 1981. On an annual average basis, 250 persons have graduated in Veterinary Medicine since 1981, accounting for only 0.2% of all undergraduate qualifications awarded. If the relative popularity of this course and faculty capacities hold over the 1987 to 1995 period, about 300 students per year should graduate from this course. The number of new graduates competing for related employment is therefore expected to remain the same over the projection period as it was between 1981 and 1985.

Destination of Graduates

According to 1984 data, the labour market situation was more favourable for Veterinary Medicine graduates (a 4% unemployment rate) than for other undergraduates. As a result, a dramatically higher-than-average proportion of graduates in this field entered the labour force.

Occupations

Most graduates were employed as veterinarians two years after graduation, and only a marginal number entered other occupations. A significantly higher-than-average proportion were self-employed, as graduates from this field tend to establish their own private practice.

The Course in Retrospect

In general, Veterinary Medicine graduates were more satisfied with their course of study than graduates from other fields. A significantly higher-than-average proportion stated they would make the same educational choice if they had to decide again. Almost no Veterinary Medicine graduates indicated that they considered themselves over-qualified for their present job.

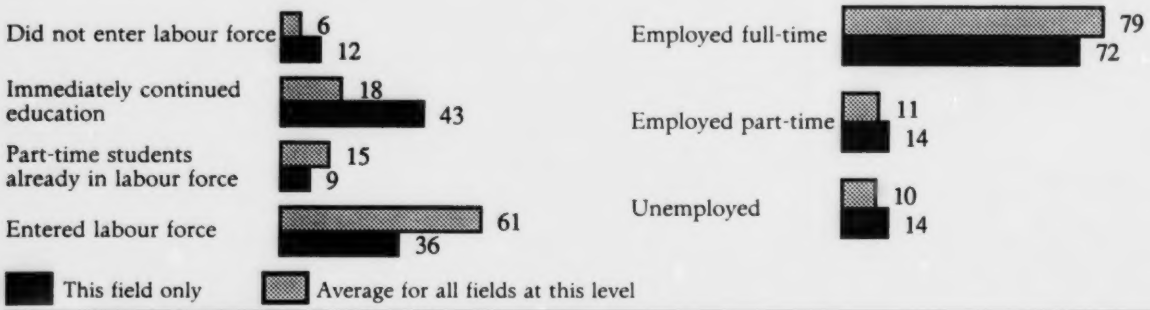
Chemistry

Undergraduate
University (4 years)

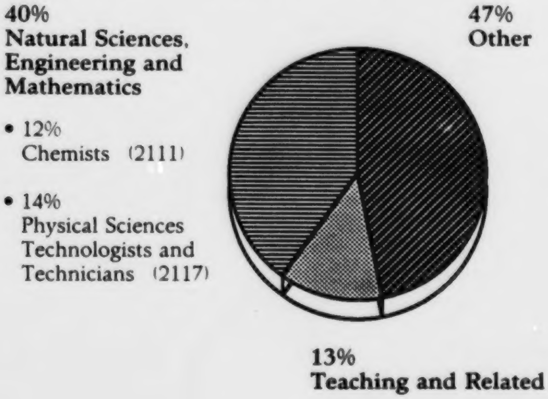
Graduate Trends and Projections

	1971	1981	1985	1986	1995
Number of Graduates	852	786	849	890	860
% of Total Undergraduate Degrees	1.2	0.8	0.7	0.8	0.8

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation



Physical Sciences

Chemistry

Undergraduate
University (4 years)

This field of study includes such undergraduate programs as analytical chemistry and applied chemistry. The minimum qualification necessary to enter the program is a high-school diploma with above-average standing in appropriate courses, such as chemistry, physics and mathematics. (Quebec students applying to a Quebec university must have a Diploma of Collegial Studies with concentration in chemistry.) The average duration of the Chemistry program at this level is four years. In some institutions it is possible to obtain the Chemistry degree through a CO-OP program (part of the time in school and part in related employment). Roughly 10% of Chemistry students graduated in this manner in 1982. The average age of 1982 Chemistry graduates (24) was slightly lower than the average. Most graduates in this field are men; in 1985, they represented about 65% of the graduating population.

Graduate Trends and Projections

In the past, graduates from this field of study have accounted for less than 1% of all students graduating at the undergraduate level. The average annual number of graduates has remained quite constant since 1971. If the current popularity of this course and the capacity of faculties to absorb new students hold over the 1987 to 1995 period, about 900 students per year should graduate in Chemistry at this level.

Destination of Graduates

A greater proportion of Chemistry graduates than graduates in other fields pursued their education after obtaining their degree. Fewer decided to enter the labour force. However, this did not make looking for a job easier. In fact, more graduates in this field than in others were unable to secure full-time jobs, and a greater-than-average proportion remained unemployed.

Occupations

Graduates working full-time two years after graduation were employed mainly in the natural sciences and in teaching. Only 12% of the graduates found work as chemists. A fair proportion (28%) were working in related occupations in the natural sciences. Master's and doctorate graduates in Chemistry are probably competing in the labour market with undergraduate Chemistry degree recipients.

The Course in Retrospect

Graduates from this field experienced less favourable labour market conditions than those from other fields, as an average proportion thought their jobs were related to the field of study. In spite of this, they were more satisfied with their job than were other graduates, and a lower-than-average proportion of them thought they were over-qualified for their job. However, they were less likely than other graduates to report that they would repeat the same educational choice if they had the opportunity to make that decision again.

Chemistry

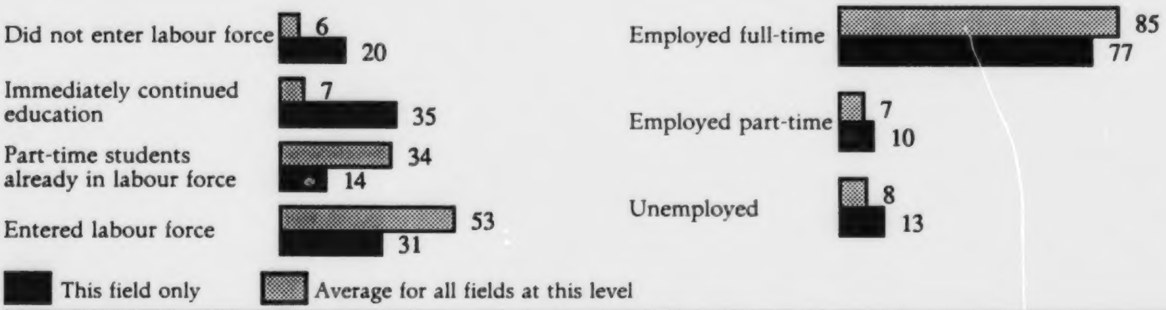
Physical Sciences

Master's
University (2 years)

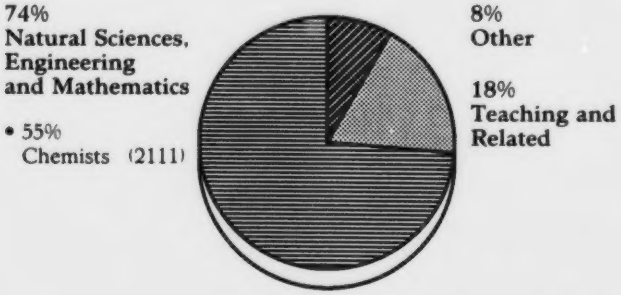
Graduate Trends and Projections

	1971	1981	1985	1986	1995
Number of Graduates	218	109	147	145	130
% of Total Master's Graduates	2.1	0.8	0.9	0.9	0.9

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation



Physical Sciences

Chemistry

Master's
University (2 years)

Chemistry at the master's level includes such areas of study as inorganic chemistry, organic chemistry, analytical chemistry and bio-organic chemistry. The entrance prerequisites for this field of study vary by institution, but in general, candidates must have an honours undergraduate degree, or the equivalent, in this or a closely related field of study from a recognized university. (Holders of graduate diplomas and certificates are included with master's graduates, although in this field of study, only the degree program is offered.) The course is available in all provinces except Prince Edward Island and generally takes two years, depending on the institution. At some universities, students may graduate through involvement in a CO-OP program, although according to 1984 data, only about 5% of the graduates received their qualification in this manner. The majority of graduates were men (70%) and were concentrated in Ontario (40%).

Graduate Trends and Projections

Enrollments, and therefore graduations, depend on the capacity of the specific faculty to absorb new students and on the demand for entrance. Both these factors are influenced, in part, by the current and anticipated labour market situation. Since 1981, the annual number of graduates has averaged 125. The popularity of this course, as indicated by its share of all master's graduates, declined significantly from 1971 to 1981 and since then has held at that level. If the course's current popularity and faculty capacities hold over the 1987 to 1995 period, about 150 students should graduate from this course per year.

Destination of Graduates

Upon graduation, a dramatically lower-than-average proportion of graduates became first-time labour force entrants, a statistic largely resulting from the dramatically greater-than-average proportion who continued their education or chose to enter the household sector. A smaller-than-average proportion of graduates were already in the labour force and had been attending school only part-time. These graduates who sought employment were less successful than other master's graduates, as evidenced by their higher-than-average unemployment rate (13%) and the significantly lower-than-average proportion of them who found full-time jobs.

Occupations

Most Chemistry graduates working full-time two years after graduation were employed as chemists for the federal government or in the business services industry. The remainder had jobs in various other occupations, particularly in teaching and related occupations. Graduates of this course who seek employment as chemists, face competition primarily from other university graduates in chemistry, engineering or biological science and from community college graduates in chemical technology.

The Course in Retrospect

A 1984 survey indicated that not only was the transition from school to work more difficult for 1982 graduates in this field than for other master's graduates, but significantly more of the graduates thought that their current job did not match the field of study. The survey further indicated that, in contrast, a significantly greater-than-average proportion were satisfied with their job, and a slightly lower-than-average proportion considered themselves overqualified for it. In keeping with their relatively unfavourable labour market transition, the low correspondence between course and job, and an average annual salary almost $6,000 lower than the average across all master's courses, approximately 75% of the graduates, compared with 80% of all master's graduates, indicated that they would follow the same educational route if they had to make this choice again.

Chemistry

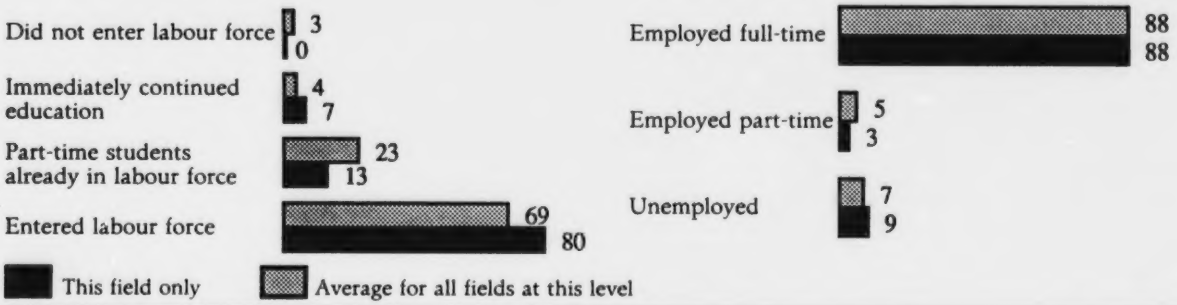
Physical Sciences

Doctorate
University (4 years)

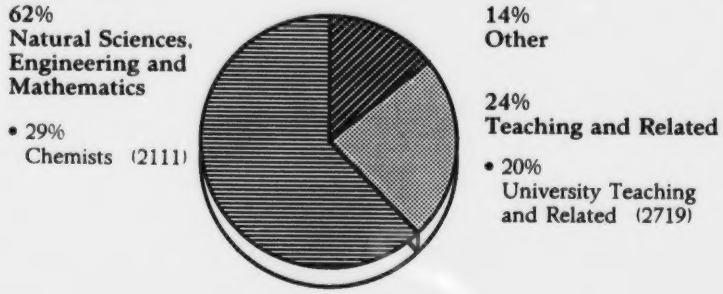
Graduate Trends and Projections

	1971	1981	1985	1986	1995
Number of Graduates	241	135	138	145	150
% of Total Doctorate Graduates	14.8	7.4	6.9	6.9	6.9

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation



Chemistry

Doctorate
University (4 years)

The PhD in chemistry covers such areas of specialization as inorganic chemistry, organic chemistry, analytical chemistry or bio-organic chemistry. Applicants to this program must have completed a master's degree in Chemistry. Under certain conditions, some institutions may admit students who have completed only one year at the master's level. All provinces except Prince Edward Island offer the doctorate program in Chemistry, which usually takes four years, depending on the institution. The average age of graduates in this field in 1982 was 30, compared with 34 for the majority of other doctoral graduates. The representation of women among the graduates (14%) was lower than the average for the doctorate level.

Graduate Trends and Projections

Since the beginning of the 1980s, an average of about 150 Chemistry students per year have graduated at the doctorate level, a decrease compared with the average for the 1970s. This field of study has been attracting fewer students since 1971, as indicated by its proportion of all doctorate graduates, which declined from 15% to 7% between 1971 and 1985. If the relative popularity of this course and the capacity of relevant faculties to absorb new students hold over the 1987 to 1995 period, about 160 students per year should graduate from this field of study.

Destination of Graduates

The majority of Chemistry PhD graduates entered the labour force upon completion of their program, while the others pursued their education. The success of those who looked for employment was comparable to the average for the doctorate level, while the proportion who remained unemployed was slightly greater than average.

Occupations

Most Chemistry graduates had jobs in the field of natural sciences, within which chemists are classified. Another significant number were employed in the teaching field at the university level.

The Course in Retrospect

In comparison with other PhD graduates, those in Chemistry were less satisfied with their current job but also less likely to consider themselves over-qualified for their job. In other aspects, such as correspondence of job and program of study and the likelihood of repeating their educational choice if confronted with that decision again, graduates in Chemistry were comparable to other PhD graduates.

Computer Science

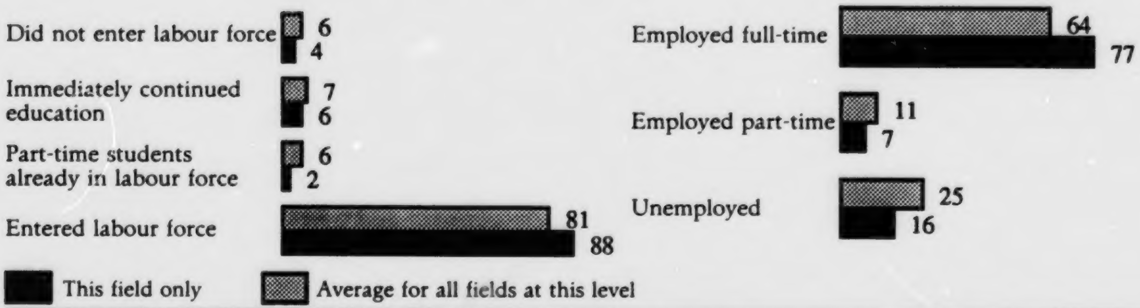
Trade/Vocational Programs
Public Trade Schools and Similar Institutions (12 months)

Graduate Trends

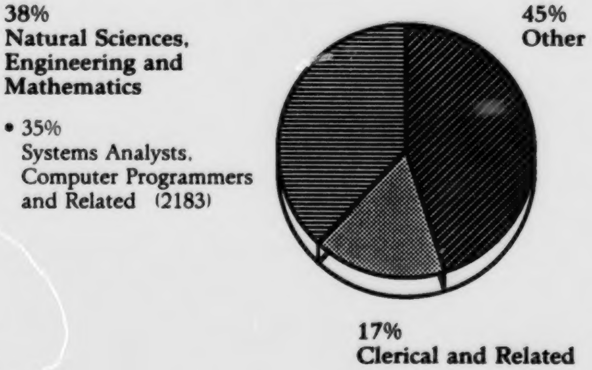
	1983-84*
Number of Graduates	1,578
% of Total Trade/Vocational Graduates	2.1

This is the only period, since 1977, for which comprehensive and reliable data covering all provinces, territories and fields of study were available. Given this lack of historical data and the recent release of the data for 1983-84, no projections are yet available.

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation



Physical Sciences

Computer Science

Trade/Vocational Programs
Public Trade Schools and Similar Institutions (12 months)

This field of study includes such areas of specialization as computer programming, systems design and analysis, computer technology and data processing. The qualifications required for entrance to these programs vary according to the type of program, the institution and the province. Those who completed a trade-level training program in Computer Science in 1982 had, on average, completed a college diploma prior to enrollment. The average length of the training programs is about 12 months, depending on the specific program and the institution. All provinces except New Brunswick offered this course in 1983-1984. The graduates from this program were generally older than the average for this level, and women accounted for more than 30% of them.

Graduate Trends and Projections

In the 1983-1984 period, approximately 1,600 persons graduated in a trade-level training program in Computer Science. This number represented about 2% of all completions reported for that period. If the current popularity of this course and the capacity of relevant faculties to absorb new students hold over the 1987 to 1995 period, the average annual number of graduates should decline slightly, owing to the declining size of the corresponding population age group.

Destination of Graduates

A slightly greater-than-average proportion of graduates decided to enter the labour force upon completion of their program. They were quite successful in their job search, as the majority found full-time work, and their unemployment rate was below the average for this level.

Occupations

Two years after graduation, more than 30% of the graduates working full-time were employed as systems analysts, computer programmers or in related occupations. Another significant portion found work in clerical and related occupations, usually as electronic data-processing operators. Others found work in various occupations but in numbers too small to be reported here. Graduates from this course of study compete in the labour market with college and university graduates from the same field of study.

The Course in Retrospect

In spite of the relatively favourable labour market for Computer Science graduates, their overall judgement of their labour market outcome was comparable to the average for this level. In terms of both correspondence between job and course of study and job satisfaction, the graduates held the same opinions as the trade/vocational average. Similarly, about 65% of the graduates, compared with 60% of all trade/vocational graduates, stated they would select the same program if they had to make that choice again. Computer Science graduates from other levels reported a more favourable labour market outcome.

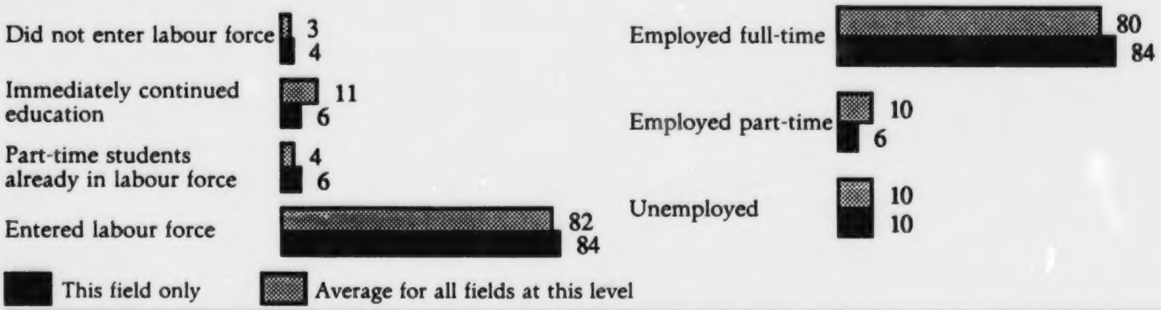
Computer Science

Career Program
Community College (2 years)

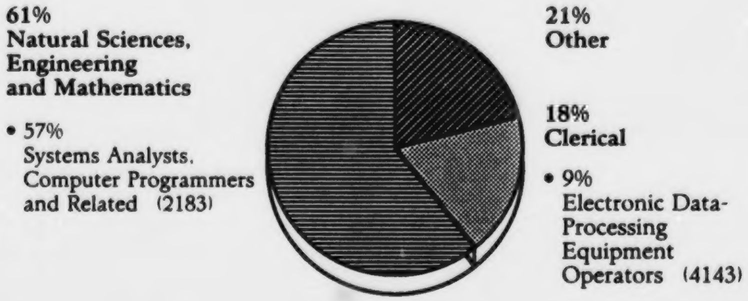
Graduate Trends and Projections

	1977	1981	1985	1986	1995
Number of Graduates	964	1,763	4,823	4,895	4,600
% of Total Community College Graduates	2.6	3.8	8.2	8.2	8.2

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation



Computer Science

Career Program
Community College (2 years)

This field of study includes programs in computer programming (COBOL, FORTRAN etc.), computer science (hardware concepts and system training), computer technology (computer design) and data processing (business data processing, data bases, project basics). The program prerequisites vary by institution, but in general, candidates must pass an interview, take diagnostic English (French) and mathematics tests and a computer aptitude test, have some typing skill and have successfully completed senior high-school courses in English (French) and mathematics. Although not compulsory, courses in business and computer science are recommended. Programs in this field of study generally take two years. At some colleges, students may graduate through involvement in a CO-OP program, and according to 1984 data, a significant proportion of graduates in this course of study (25%) received their certificate or diploma in this manner. Approximately one-half of the graduates were women and were concentrated in Quebec (50%).

Graduate Trends and Projections

Enrollments, and therefore graduations, depend on the capacity of the specific faculty to absorb new students and on the demand for entrance. Both these factors are influenced, in part, by the current and anticipated labour market situation. Since 1981, the annual number of graduates has averaged 3,600. The popularity of this course, as indicated by its share of all community college graduates, grew slightly between 1977 and 1981, and then almost tripled between 1981 and 1985. If the course's current popularity and the capacity of relevant faculties to absorb new students hold over the 1987 to 1995 period, about 4,700 students should graduate from this course per year.

Destination of Graduates

Upon graduation, slightly fewer of these graduates than others continued their education. Most entered the labour force. Although the proportion of graduates who could not find employment (10%) was about the same as the average in all college fields of study, a slightly larger proportion of Computer Science graduates found full-time employment.

Occupations

Computer Science graduates who were working full-time two years after graduation were employed mostly as systems analysts/computer programmers or as electronic data-processing equipment operators in the computer and related services industry. Others were employed in a variety of occupations, particularly in management and sales. Graduates who seek employment as systems analysts/programmers face competition primarily from university graduates with a degree in computer science or commerce.

The Course in Retrospect

In general, Computer Science graduates were more satisfied with their labour market outcome than other college graduates. This is reflected by the greater-than-average proportion of graduates who thought that their present job matched the field of study and who were satisfied with their job. A further indicator of job satisfaction is the small proportion of graduates (compared with the average for all college fields of study), who thought they possessed more skills than their job required. A significantly larger-than-average proportion of graduates said they would select the same course, if they had to choose again.

Computer Science

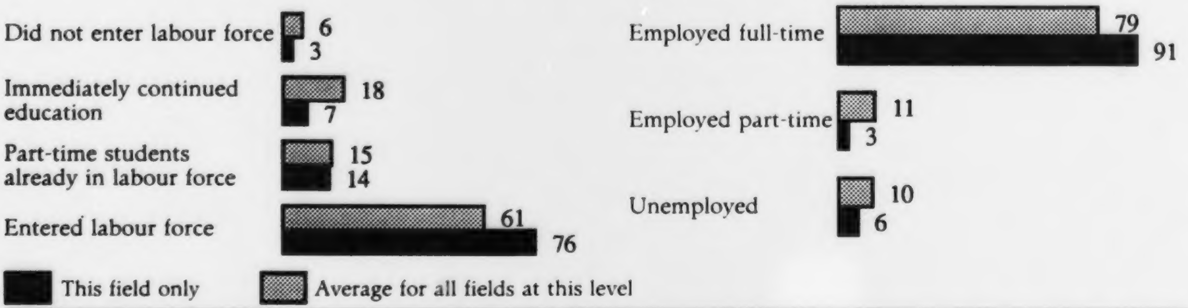
Physical Sciences

Undergraduate
University (4 years)

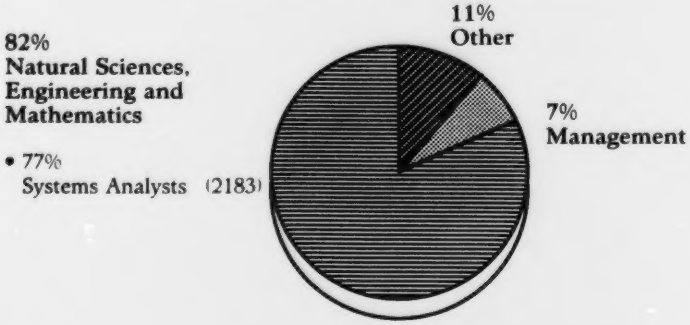
Graduate Trends and Projections

	1971	1981	1985	1986	1995
Number of Graduates	374	1,370	3,517	3,690	3,550
% of Total Undergraduate Degrees	0.5	1.4	3.1	3.1	3.1

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation



Physical Sciences

Computer Science

Undergraduate
University (4 years)

At the undergraduate level, this field of study covers such areas of specialization as office information systems, scientific and business applications, programming, and computer and software design. The length of the bachelor's program varies according to the institution but is generally three or four years. It is offered in all provinces except Prince Edward Island. To be admitted, students must have a high-school diploma with good marks in mathematics, physics, chemistry and biology. In Quebec, students from that province must have a Diploma of Collegial Studies with a combination of courses relevant to the program. More and more women are entering the field of Computer Science; the proportion of women graduates increased from 22% in 1977 to 27% in 1985.

Graduate Trends and Projections

Between 1971 and 1985, the number of undergraduate degrees, diplomas and certificates awarded in Computer Science increased ninefold. Similarly, the popularity of this field of study has been increasing over the years to the point where Computer Science graduates now represent 3% of all undergraduates. If the course's current popularity and the capacity of relevant faculties to absorb new students hold over the 1987 to 1995 period, about 3,700 students should graduate from this course per year.

Destination of Graduates

According to 1984 data, a significantly lower-than-average proportion of graduates chose to continue their education after obtaining their degree. The majority of graduates looking for jobs had greater success than other graduates, as reflected in their lower-than-average unemployment rate.

Occupations

A 1984 survey indicated that the majority of 1982 Computer Science graduates were working full-time as systems analysts or in related occupations in the fields of natural sciences, engineering and mathematics. Other graduates entered management and administrative occupations. Regardless of their occupation, they remained a valuable source of potential supply for computer-related jobs.

The Course in Retrospect

In comparison with other graduates at this level, Computer Science degree holders showed a greater level of satisfaction with their jobs and reported a higher-than-average level of correspondence between their job and the program of study. This may explain why a significantly higher-than-average proportion stated they would follow the same educational route if they had to make the choice again.

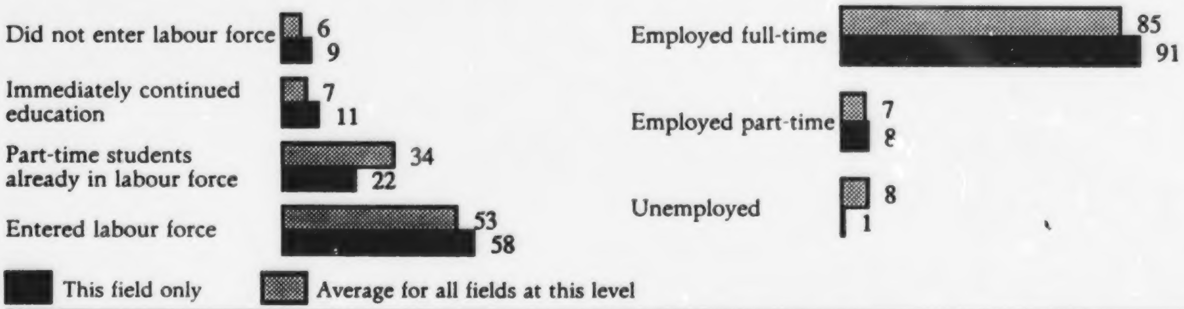
Computer Science

Master's
University (2 years)

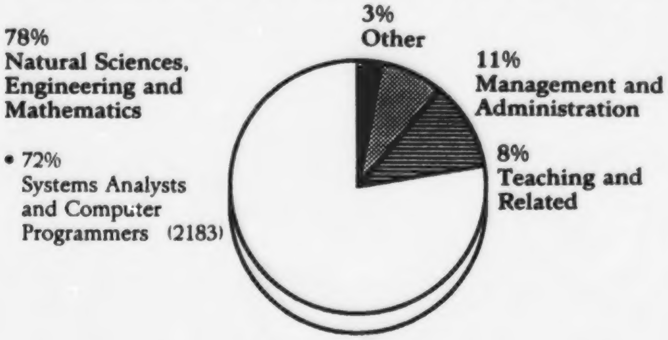
Graduate Trends and Projections

	1971	1981	1985	1986	1995
Number of Graduates	128	155	255	250	230
% of Total Master's Graduates	1.2	1.1	1.5	1.5	1.5

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation



Computer Science

Master's
University (2 years)

The master's course includes programs in such areas as office information systems, scientific and business applications, programming and computer and software design. The prerequisites for entrance into this field of study vary by institution, but in general, candidates must have an honours undergraduate degree, or the equivalent, in this or a closely related field of study (for example mathematics or engineering) from a recognized university. As mentioned in the introduction, holders of graduate diplomas and certificates are included with master's graduates, although in this field of study, only the degree program is available. The master's course is offered in all provinces except Prince Edward Island and generally takes two years, depending on the institution. According to 1984 data, the majority of graduates were men (80%) and were equally concentrated in Quebec and Ontario (30%).

Graduate Trends and Projections

Enrollments, and therefore graduations, depend on the capacity of the specific faculty to absorb new students and on the demand for entrance. Both these factors are influenced, in part, by the current and anticipated labour market situation. Since 1981, the annual number of graduates has averaged 225. The popularity of this course, as reflected by its share of all master's graduates, was fairly constant from 1971 to 1981, but has grown slightly since then. If the course's current popularity and the capacity of relevant faculties to absorb new students hold over the 1987 to 1995 period, 200 students should graduate from this course per year.

Destination of Graduates

Fewer Computer Science graduates than other master's graduates took this course on a part-time basis. Upon graduation, slightly more of them looked for jobs and had greater success than other graduates, as indicated by their extremely low unemployment rate (1%).

Occupations

The majority of Computer Science master's graduates working full-time two years after graduation were employed as systems analysts or computer programmers in the computer and related service industry. The remainder were employed in a variety of other occupations, particularly in management, administration and teaching. Graduates of this course who seek employment face competition primarily from other university graduates in this field of study or in commerce or mathematics, and from community college graduates in Computer Science.

The Course in Retrospect

A 1984 survey indicated that the transition from school to work was significantly easier for 1982 Computer Science graduates than for other master's graduates, and that a less-than-average proportion believed they possessed more qualifications than their current job required. The survey further indicated that a slightly greater-than-average proportion thought their job matched the field of study and that almost all were satisfied with their job. In keeping with these statistics, 90% of the graduates, compared with 80% of all master's graduates, indicated that they would follow the same educational route if they had to make this choice again.

Geology

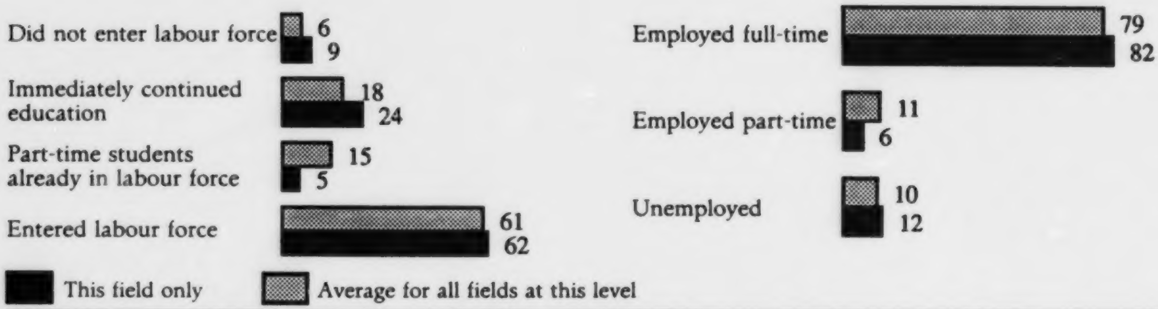
Physical Sciences

Undergraduate
University (4 years)

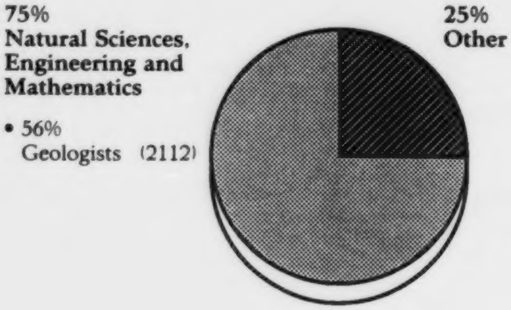
Graduate Trends and Projections

	1971	1981	1985	1986	1995
Number of Graduates	314	475	988	1,040	1,010
% of Total Undergraduate Degrees	0.4	0.5	0.9	0.9	0.9

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation



Geology

Undergraduate
University (4 years)

This field of study consists of undergraduate programs in geology, crystallography, geology-physics and geochemistry. Applicants to these programs must have a high-school diploma with a concentration in mathematics, physics and chemistry. Quebec students applying to a Quebec institution must have a Diploma of Collegial Studies covering the above-mentioned courses. This undergraduate course of study usually takes four years and is offered in all provinces except Prince Edward Island. At some institutions, students may take the course on a CO-OP basis, combining periods of in-school training with periods of related work. In 1985, women represented about 20% of all Geology undergraduates.

Graduate Trends and Projections

Between 1971 and 1985, the annual average number of students graduating in Geology at this level increased threefold, and the relative popularity of the course has increased to the point where Geology graduates now represent close to 1% of all undergraduates. During the first half of the 1980s, approximately 800 Geology students graduated each year, compared with 475 during the 1970s. If the current popularity of this course and the capacity of relevant faculties to absorb new students hold over the 1987 to 1995 period, about 1,100 students should graduate from this course per year.

Destination of Graduates

According to 1984 data, an average proportion of Geology graduates entered the labour market, while a higher-than-average proportion decided to pursue their education. Almost no graduates were enrolled part-time during the final semester of their program. Graduates who looked for a job were slightly less successful than graduates from other fields; a slightly higher percentage of Geology graduates remained unemployed.

Occupations

Of the graduates working full-time two years after graduation, the majority were employed in occupations related to the natural sciences and engineering, mostly as geologists. Other graduates were employed in various occupations, and were not concentrated in any one of them.

The Course in Retrospect

In general, the graduates who found work had positive feelings about their job and their education. A greater-than-average proportion thought their current job matched their course of study, and few graduates considered themselves over-qualified for their job. A greater-than-average proportion of graduates said they would follow the same educational route if they had to make that decision again.

Geology

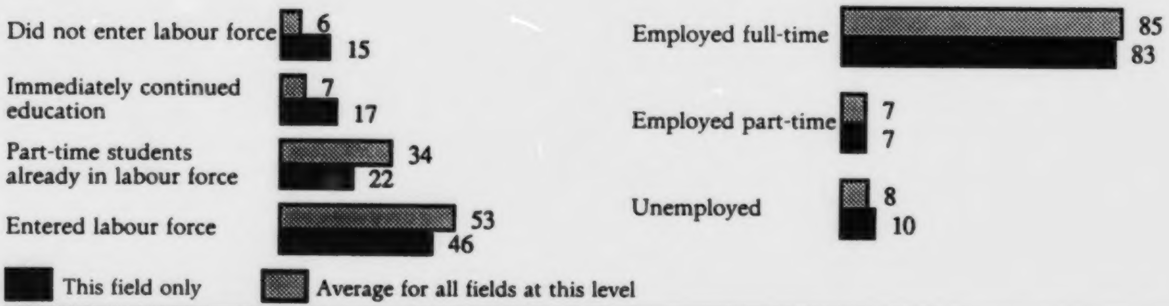
Physical Sciences

Master's
University (2 years)

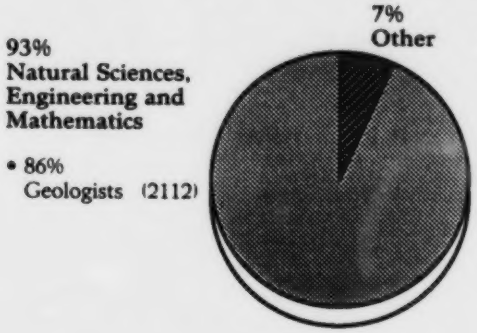
Graduate Trends and Projections

	1971	1981	1985	1986	1995
Number of Graduates	128	137	226	225	200
% of Total Master's Graduates	1.2	1.0	1.4	1.4	1.4

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation



Physical Sciences

Geology

Master's
University (2 years)

The Geology master's course includes such programs as crystallography, geochemistry, geophysics and paleontology. The program prerequisites vary by institution, but in general, candidates must have an honours undergraduate degree, or the equivalent, in this or a closely related field of study, such as chemistry or physics, from a recognized university. As mentioned in the introduction, holders of graduate diplomas and certificates are included with master's graduates. The diploma or certificate programs are usually shorter than the master's course and may be taken following either an undergraduate or a master's degree. Almost all the 1985 graduates (95%) received degrees rather than diplomas or certificates. The master's course is offered in all provinces except Prince Edward Island, and generally takes two years, depending on the institution. According to 1984 data, the majority of graduates were men (80%) and were concentrated in Ontario (45%).

Graduate Trends and Projections

Enrollments, and therefore graduations, depend on the capacity of the specific faculty to absorb new students and on the demand for entrance. Both these factors are influenced, in part, by the current and anticipated labour market situation. Since 1981, the annual number of graduates has averaged 175. The popularity of this course, as indicated by the proportion of all master's graduates, declined slightly between 1971 and 1981, but since then has exceeded the 1971 level. If the course's current popularity and faculty capacities hold over the 1987 to 1995 period, 200 students should graduate from this course per year.

Destination of Graduates

Upon graduation, a significantly lower-than-average proportion of graduates became first-time labour force entrants, a statistic resulting largely from the greater-than-average proportion who continued their education or chose to enter the household sector. A much smaller-than-average proportion of graduates were already in the labour force and had been attending school on a part-time basis. The success of Geology graduates in finding employment was slightly worse than that of other master's graduates, as reflected by their 10% unemployment rate.

Occupations

Master's Geology graduates working full-time two years after graduation were employed mostly as geologists. Others were employed in a variety of occupations, but were not concentrated in any of them. Graduates of this course who seek employment face competition primarily from other university graduates from this or a closely related field of study.

The Course in Retrospect

A 1984 survey indicated that although the transition from school to work was slightly more difficult for 1982 graduates than for other master's graduates, a smaller proportion of Geology graduates thought that they possessed more qualifications than their current job required. The survey further indicated that all graduates who found full-time employment were satisfied with their current jobs. It appears that this high level of job satisfaction coupled with higher-than-average annual salaries swayed the graduates' opinions concerning their educational choice. In fact, about 90% of them, compared with 80% of all master's graduates, stated they would make the same educational choice if they had to decide again.

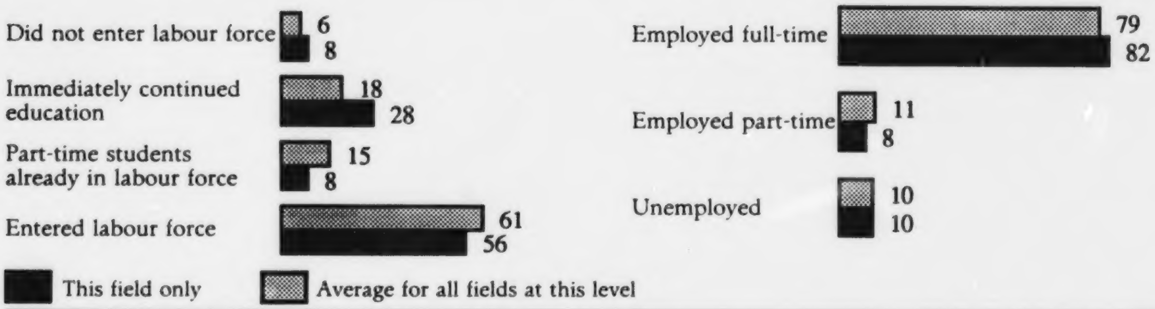
Mathematics

Undergraduate
University (4 years)

Graduate Trends and Projections

	1971	1981	1985	1986	1995
Number of Graduates	1,747	1,453	2,110	2,220	2,160
% of Total Undergraduate Degrees	2.4	1.5	1.9	1.9	1.9

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation

39% **Natural Sciences, Engineering and Mathematics**	24% **Managerial, Administrative and Related**	14% **Teaching and Related**	23% **Other**
• 28% Systems Analysts, Computer Programmers and Related (2183)	• 16% Accountants, Auditors and Other Financial Officers (1171)	• 8% Secondary School Teachers (2733)	

Mathematics

Undergraduate
University (4 years)

The Mathematics field of study consists of all undergraduate programs related to mathematics, such as mathematical sciences, applied mathematics, actuarial mathematics, and science or applied statistics. The minimum qualification necessary for admittance to these programs is a high-school diploma with above-average standing in courses such as chemistry, biology, mathematics and physics. Quebec students applying to a Quebec institution are required to have a Diploma of Collegial Studies. The Mathematics program at this level generally lasts four years, depending on the institution and the province, and is offered in all provinces. Some institutions also offer the opportunity of obtaining a degree through involvement in a CO-OP program, where students spend time both in school and in related work. Most graduates are men, although about 40% of the 1985 graduates were women.

Graduate Trends and Projections

The number of graduates in Mathematics has fluctuated over the years, declining during the second half of the 1970s and gaining more popularity in recent years. Since 1981, an average of 1,775 persons have graduated in Mathematics each year, representing 1.7% of all undergraduates. If the current popularity of this course and the capacity of relevant faculties to absorb new students hold over the 1987 to 1995 period, about 2,300 students should graduate from this course per year.

Destination of Graduates

A greater-than-average proportion of graduates from this field of study decided to pursue their education upon completion of their program. Graduates who decided to enter the labour force experienced average success in securing a job; their unemployment rate was comparable to the rate for other graduates at this level.

Occupations

Graduates working full-time two years after graduation mostly had jobs related to computers and mathematics, for example as systems analysts. Graduates in actuarial science found jobs in administration and finance, while others were employed in the teaching field. Those who entered occupations related to computers or teaching had to compete with university and college graduates in fields such as computer science, business and commerce and elementary/secondary teacher training.

The Course in Retrospect

A proportion of Mathematics graduates, comparable to the average for this level, reported their current job matched the course of study. A greater-than-average proportion of graduates were satisfied with their present job and were less likely than others at this level to consider themselves over-qualified for their job. An average proportion of graduates said they would be ready to enroll in the same program of study if they had to make the decision again.

Mathematics

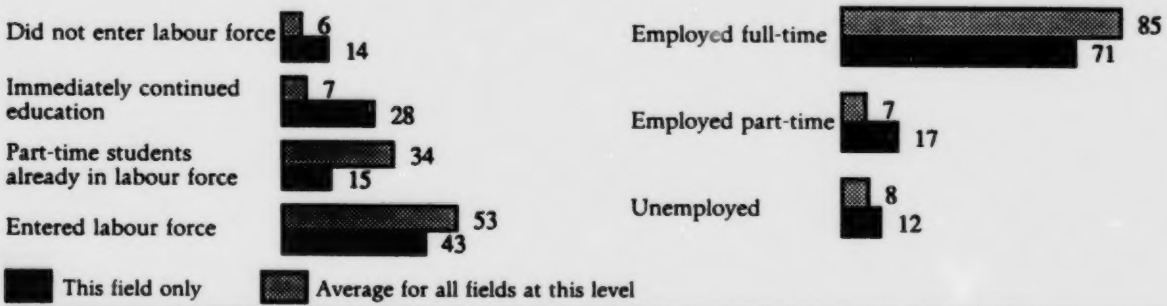
Physical Sciences

Master's
University (2 years)

Graduate Trends and Projections

	1971	1981	1985	1986	1995
Number of Graduates	230	131	198	195	175
% of Total Master's Graduates	2.2	0.9	1.2	1.2	1.2

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation

43%
Teaching and Related

- 14%
  Secondary School Teachers (2733)
- 12%
  Community College and Vocational School Teachers (2791)

41%
Natural Sciences, Engineering and Mathematics

- 19%
  Mathematicians, Statisticians and Actuaries (2181)
- 12%
  Systems Analysts and Computer Programmers (2183)

16%
Other

Physical Sciences

Mathematics

Master's
University (2 years)

This course of study includes such programs as mathematical sciences, applied mathematics, actuarial mathematics and applied statistics. The entrance prerequisites vary by institution, but in general, candidates must have an honours undergraduate degree, or the equivalent, in this or a closely related field of study from a recognized university. As mentioned in the introduction, holders of graduate diplomas and certificates are included with master's graduates, although in this course only the degree program is offered. The master's program is offered in all provinces except Prince Edward Island and generally takes two years, depending on the institution. At some universities, it is possible to graduate through involvement in a CO-OP program. According to 1984 data, roughly 10% of the graduates received their qualification in this manner. The majority of these graduates were men (70%) and were equally concentrated in Quebec and Ontario (35%).

Graduate Trends and Projections

Enrollments, and therefore graduations, depend on the capacity of the specific faculty to absorb new students and on the demand for entrance. Both these factors are influenced, in part, by the current and anticipated labour market situation. Since 1981, the annual number of graduates has averaged 175. The popularity of this course, as indicated by its share of all master's graduates, plummeted over the 1971 to 1981 period, but has been rising since then. If the course's current popularity and the capacity of relevant faculties to absorb new students hold over the 1987 to 1995 period, about 200 students should graduate from this course per year.

Destination of Graduates

Upon graduation, a significantly lower-than-average proportion of graduates became first-time labour force entrants, a statistic largely resulting from the greater-than-average proportion of graduates who continued their education. The success of those who looked for employment was worse than for other master's graduates (12% unemployment) and would have been even worse had not a significantly greater-than-average number found part-time employment.

Occupations

Mathematics graduates working full-time two years after graduation were employed mostly as mathematicians, statisticians or actuaries. Others were employed in various other occupations, particularly as teachers and systems analysts. Graduates of this course who seek employment face competition primarily from other university graduates in this or related fields of study (computers, commerce, economics).

The Course in Retrospect

A 1984 survey indicated that the transition from school to work was more difficult for 1982 Mathematics graduates than for other master's graduates, and that a dramatically greater-than-average proportion thought they possessed more qualifications than their current job required. The survey further indicated that in spite of the lower-than-average proportion who thought their job matched the field of study, all graduates who found full-time employment were satisfied with their job. In keeping with these statistics, approximately 85% of the graduates, compared with 80% of all master's graduates, indicated that they would follow the same educational route if they had to make this choice again.

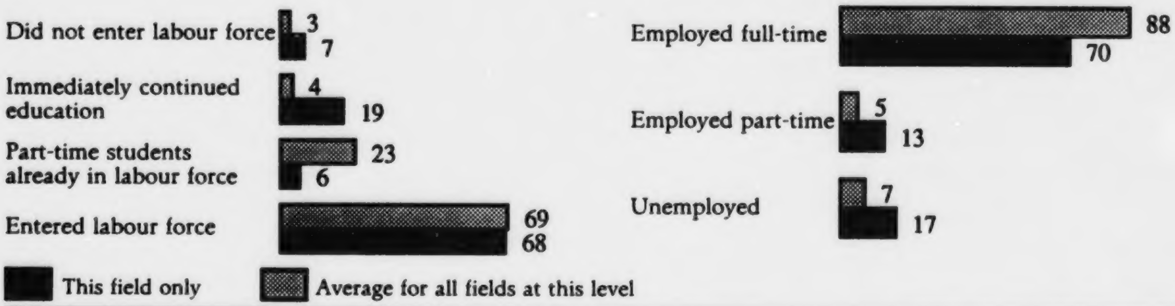
Mathematics

Doctorate
University (4 years)

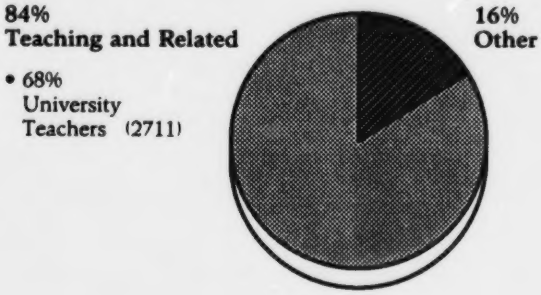
Graduate Trends and Projections

	1971	1981	1985	1986	1995
Number of Graduates	74	61	46	50	50
% of Total Doctorate Graduates	4.6	3.4	2.3	2.3	2.3

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation



Mathematics

Doctorate
University (4 years)

The doctoral course in Mathematics includes programs in such areas as applied mathematics, applied statistics and actuarial science. It is offered in all provinces except Newfoundland and Prince Edward Island. The usual prerequisites for admittance into the course are completion of a master's degree in one of the Mathematics areas of specialization and the ability to read mathematical articles in more than one language (such as the other official language, German or Russian). These prerequisites may vary according to the institution, such as the duration of the program which, on average, spans four years. A smaller proportion of students enroll part-time in Mathematics than in other doctorate fields. The field is also still dominated by men; women represented about 15% of those enrolled full-time in 1985. According to 1984 data, the average age of graduates in Mathematics was lower than in other doctoral courses (30 compared with 34). This is partly explained by the lower proportion of graduates who were enrolled part-time.

Graduate Trends and Projections

Since 1981, the annual average number of graduates has been 50. The relative popularity of the field, expressed as the proportion that Mathematics graduates were of all PhD graduates, decreased from 4.6% in 1971 to 2.3% in 1985. More people, on average, graduated from this field during the 1970s than during the early 1980s. If the current popularity of this course and the capacity of relevant faculties to absorb new students hold over the 1987 to 1995 period, again some 50 students should graduate in Mathematics per year.

Destination of Graduates

A significantly larger-than-average proportion of Mathematics PhD graduates continued their schooling after completion of their degree. This reduces the percentage of those who entered the labour force or who decided not to look for work. Those available for work had less success than graduates from other fields in finding employment. Their unemployment rate was significantly greater than for other graduates.

Occupations

Most Mathematics graduates who were employed two years after graduation were working in the teaching field, especially as university teachers.

The Course in Retrospect

Although an average proportion of graduates thought their current job was related to the program of study and were satisfied with their job, a very low percentage of them believed they were over-qualified for their job. They were also more likely than other graduates to state they would select the same program of study if they could make that decision again.

Physics

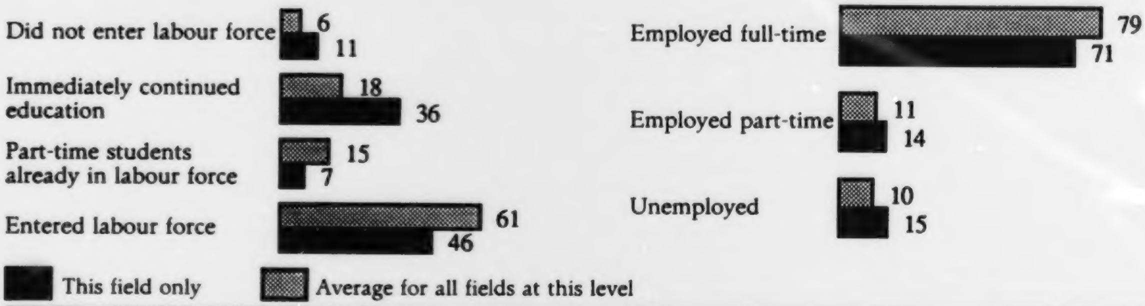
Physical Sciences

Undergraduate
University (4 years)

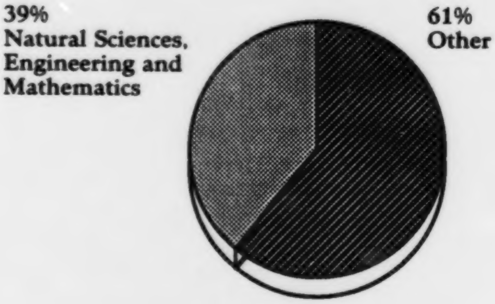
Graduate Trends and Projections

	1971	1981	1985	1986	1995
Number of Graduates	610	366	601	630	610
% of Total Undergraduate Degrees	0.8	0.4	0.5	0.5	0.5

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation



Physical Sciences

Physics

Undergraduate
University (4 years)

Undergraduate programs in Physics include a physics program as well as programs in mathematical physics, chemical physics, aerospace physics, experimental physics, astronomy and other physics disciplines. The minimum qualification necessary to enter these programs is a high-school diploma with above-average marks in courses such as physics, chemistry and mathematics. Quebec students applying to a Quebec institution must have a Diploma of Collegial Studies covering the same courses. Institutions in all provinces provide undergraduate programs in Physics which last, on average, four years, depending on the university and the province. The representation of women in Physics courses is well below the average for this level; in 1985 they accounted for only about 15% of the graduates.

Graduate Trends and Projections

After 1971, the number of graduates in this field declined steadily; only in recent years has this trend reversed. As the overall number of undergraduate qualifications awarded grew, the relative popularity of this field of study diminished. Since 1981, approximately 500 Physics graduates have received an undergraduate qualification each year, accounting for less than 1% of all graduates. If the current popularity of this course and the capacity of relevant faculties to absorb new students hold over the 1987 to 1995 period, 650 students should graduate in Physics per year.

Destination of Graduates

According to 1984 data, a significantly higher-than-average proportion of graduates decided to pursue their education after graduation. This may be partly explained by the poor labour market conditions facing those who looked for jobs. Their unemployment rate was higher than for graduates from other fields and they were less likely to find full-time employment.

Occupations

Graduates working full-time two years after graduation were employed in occupations related to natural sciences, engineering and mathematics. Unfortunately, the number reported in each of the occupations were too small to be statistically significant and could not be reported here.

The Course in Retrospect

Given the poor labour market conditions faced by graduates in this field, it is not surprising that a significantly lower-than-average proportion found their job related to the course of study. Of those who were working, a slightly lower-than-average proportion were satisfied with their current job. Also lower than average was the proportion of graduates who stated they would make the same educational choice if they had to decide again. Physics graduates at the master's and doctorate levels, however, reported a more positive situation.

Physics

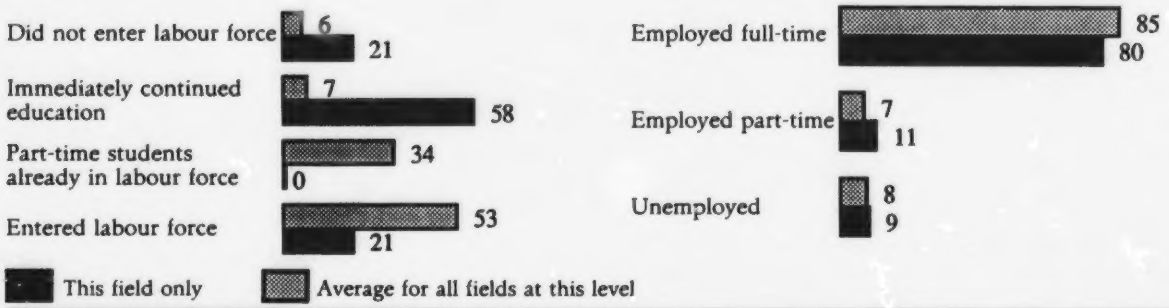
Physical Sciences

Master's
University (2 years)

Graduate Trends and Projections

	1971	1981	1985	1986	1995
Number of Graduates	231	149	181	180	160
% of Total Master's Graduates	2.2	1.0	1.1	1.1	1.1

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation

43%
Natural Sciences, Engineering and Mathematics

- 23%
  Systems Analysts and Computer Programmers (2183)
- 17%
  Physical Sciences (211)

34%
Teaching and Related

- 16%
  University Teaching and Related (2719)
- 11%
  Community College and Vocational School Teachers (2791)

23%
Other

Physical Sciences

Physics

Master's
University (2 years)

At this level, Physics includes areas of study in astronomy, aerospace science, atomic physics, chemical physics, mathematical physics, mechanics, molecular physics, nuclear physics, optics, physical acoustics and quantum mechanics. The entrance prerequisites for this field of study vary by institution, but in general, candidates must have an honours undergraduate degree, or the equivalent, in this or a closely related field of study (physical sciences) from a recognized university. In this course of study only the degree program is offered. The master's course is offered in all provinces except Prince Edward Island and generally lasts two years, depending on the institution. At some universities, it is possible to graduate through involvement in a CO-OP program, although according to 1984 data, only about 5% of the graduates in this field obtained their qualification in this manner. The majority of the graduates were men (95%) and were concentrated in Ontario (40%).

Graduate Trends and Projections

Enrollments, and therefore graduations, depend on the capacity of the specific faculty to absorb new students and on the demand for entrance. Both these factors are influenced, in part, by the current and anticipated labour market situation. Since 1981, the annual number of graduates has averaged 150. The popularity of this course, as indicated by its share of all master's graduates, declined significantly between 1971 and 1981, but has since held constant. If the course's current popularity and faculty capacities hold over the 1987 to 1995 period, about 175 students should graduate from this course per year.

Destination of Graduates

Upon graduation, a dramatically lower-than-average proportion of graduates became first-time labour force entrants, a statistic resulting largely from the dramatically greater-than-average proportion who continued their education or entered the household sector. A smaller-than-average proportion of graduates were already in the labour force and had been attending school part-time. The success of those who looked for employment was about the same as for other master's graduates, although a greater-than-average proportion were employed, either by design or circumstance, on a part-time basis.

Occupations

Most Physics graduates working full-time two years after graduation were employed as systems analysts and computer programmers or had jobs in the life sciences (as physicists), in business services or in defence industries. The remainder were employed in various other occupations, particularly in teaching. Graduates of this course who seek employment face competition primarily from other university graduates from this or a closely related field of study.

The Course in Retrospect

A 1984 survey indicated that although the transition from school to work was about the same for 1982 Physics graduates as for other master's graduates, a dramatically lower-than-average proportion of them thought their job matched the field of study, and a slightly smaller-than-average proportion were satisfied with their job. But in spite of this finding, a slightly lower-than-average proportion considered themselves over-qualified for their current position. However, their average labour market transition must have outweighed the graduates' lower-than-average level of job satisfaction and only average annual salaries, because approximately 75% of the graduates, compared with 80% of all master's graduates, indicated they would follow the same educational route if they had to make this choice again.

Physics

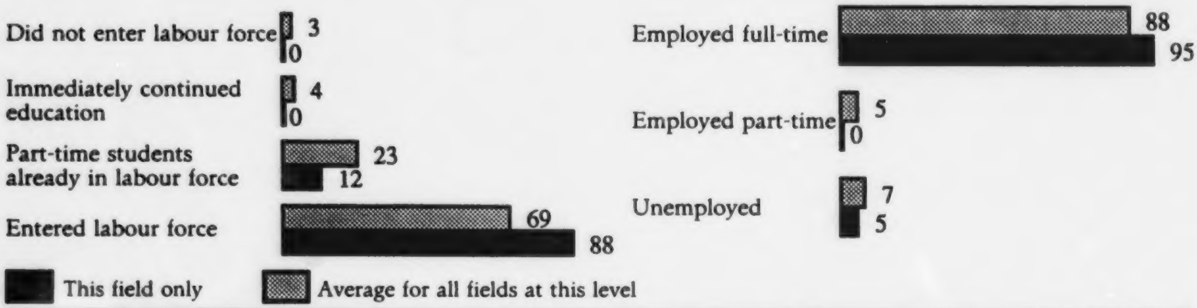
Physical Sciences

Doctorate
University (4 years)

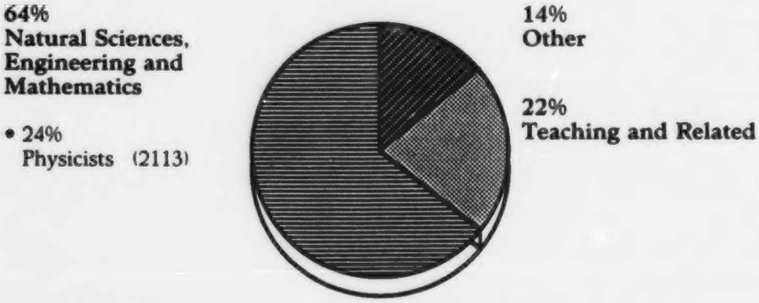
Graduate Trends and Projections

	1971	1981	1985	1986	1995
Number of Graduates	130	78	100	105	110
% of Total Doctorate Graduates	8.0	4.3	5.0	5.0	5.0

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation



Physical Sciences

Physics

Doctorate
University (4 years)

Areas of specialization in Physics at this level include astronomy, aerospace sciences, atomic physics, nuclear physics and physical acoustics. The minimum qualification necessary to enter this program is completion of a master's degree in physics, engineering or pure or applied mathematics. Some institutions in some provinces admit students who have completed one year at the master's level. Generally, the program takes four years, depending on the institution. It is offered in all provinces except Prince Edward Island and is taken mostly by men; only about 5% of the students who were enrolled full-time in 1985 were women. Students who completed the program in 1982 were slightly younger than the average (31 compared with 34).

Graduate Trends and Projections

Since 1971, the number of graduates has fluctuated from year to year. On an annual average basis, universities produced more graduates in this field during the 1970s than in the early 1980s. The relative popularity of the field, as indicated by its share of all PhD graduates, has also decreased since 1971. In 1985, one out of every 20 doctorate degrees awarded was in Physics. If the current popularity of this course and the capacity of relevant faculties to absorb new students hold over the 1987 to 1995 period, about 110 students per year should graduate from this course.

Destination of Graduates

According to 1984 data, all graduates in Physics at this level entered the labour force upon completion of their degree. They had relatively more success than other doctoral degree holders in securing a full-time job, and their unemployment rate was lower than the average. None of the Physics graduates who were surveyed were employed on a part-time basis.

Occupations

The majority of graduates employed full-time were working in occupations related to the natural sciences, engineering and mathematics. One of every four graduates reported working either as physicists or university teachers.

The Course in Retrospect

The 1984 survey of graduates indicated that Physics graduates' transition from school to work was comparable to that of other PhD graduates. Only a slightly greater-than-average number of them considered themselves over-qualified for their current job. In spite of their lower unemployment rate, however, graduates in this field were among the least likely to indicate they would take the same program of study if they had to make that decision again.

Economics

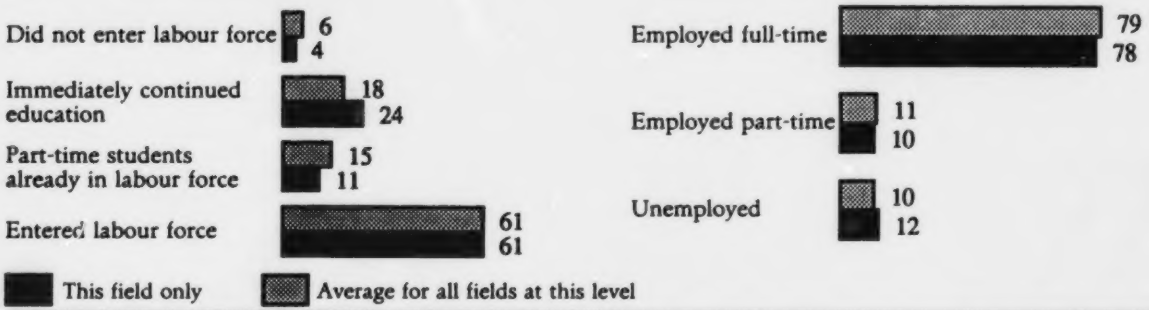
Undergraduate
University (3 years)

Social Sciences and Services

Graduate Trends and Projections

	1971	1981	1985	1986	1995
Number of Graduates	1,760	2,443	4,023	4,250	4,140
% of Total Undergraduate Degrees	2.4	2.5	3.5	3.6	3.6

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation

42%
Management, Administrative and Related

- 17%
  Accountants, Auditors and Other Financial Officers (1171)
- 9%
  Sales and Advertising Management (1137)

18%
Sales

11%
Clerical and Related

29%
Other

Social Sciences and Services

Economics

Undergraduate
University (3 years)

University programs in applied economics, business economics, agricultural economics, and quantitative methods are grouped together in this field of study. The general requirements for entrance to these programs is a high-school diploma with good standing in mathematics (or a Diploma of Collegial Studies for Quebec students applying to a Quebec university). At some institutions, it is possible to take the program on a CO-OP basis. All provinces offer an undergraduate program in Economics, which lasts an average of three years, according to the province. Women accounted for 34% of the graduates in 1985.

Graduate Trends and Projections

This field of study has become increasingly popular since 1971; between 1971 and 1985, the number of graduates grew from 1,760 to 4,023. On an annual average basis, more than 3% of all undergraduate qualifications awarded since 1981 have been in the Economics field of study. If the current popularity of this course and the capacity of relevant faculties to absorb new students hold over the 1987 to 1995 period, 4,300 students per year should graduate from this course.

Destination of Graduates

According to 1984 data, an above-average number of graduates pursued their educational training upon completion of the undergraduate program, which partly explains their lower-than-average level of participation in the labour force. Those who looked for work had a success rate comparable to that of graduates in other fields, although the percentage of unemployed graduates was slightly higher than average in this field.

Occupations

The training received by graduates from this course of study appeared to prepare them for positions in finance, management, administration and sales. Contrary to expectations, only a small number were working as economists. This may be because employers prefer master's graduates in Economics. Graduates of this course are therefore in competition for jobs with other university graduates and college graduates in the business, administration, commerce and finance fields of study.

The Course in Retrospect

The labour market appears less favourable than average for graduates hoping to work as economists. A lower-than-average proportion of graduates who found work thought their current job was related to the course of study, and they tended to consider themselves overqualified for their job. These results may partly explain why only about 55% of the graduates, compared with 70% of all graduates at this level, stated they would take the same program of study if they had to make the choice again. Master's and doctorate graduates in Economics were more likely than these graduates to find work related to their training.

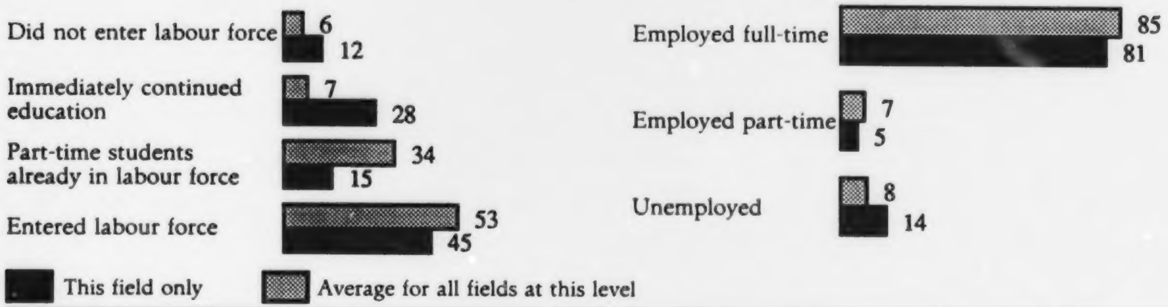
Economics

Master's
University (2 years)

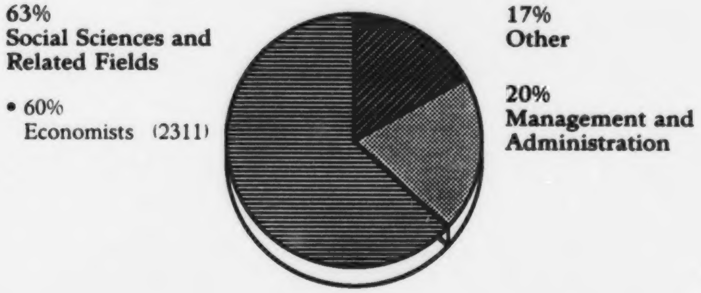
Graduate Trends and Projections

	1971	1981	1985	1986	1995
Number of Graduates	344	373	429	425	385
% of Total Master's Graduates	3.3	2.6	2.6	2.6	2.6

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation



Social Sciences and Services

Economics

Master's
University (2 years)

At the master's level, this field of study includes such areas of study as agricultural economics, econometrics, labour economics, public finance and transportation economics. The prerequisites for entrance into the field vary by institution, but in general, candidates must have an honours undergraduate degree, or the equivalent, in this or a closely related field of study from a recognized university. As mentioned in the introduction, holders of graduate diplomas and certificates are included with master's graduates. The diploma or certificate programs are generally shorter than the master's program and may be taken following either an undergraduate or a master's degree. Almost all the 1985 graduates in Economics (99%) received a master's degree rather than the certificate or diploma. The master's course is offered in all provinces except Newfoundland and Prince Edward Island and usually takes two years, depending on the institution. According to 1984 data, the majority of graduates were men (75%) and were concentrated in Ontario (35%).

Graduate Trends and Projections

Enrollments, and therefore graduations, depend on the capacity of the specific faculty to absorb new students and on the demand for entrance. Both these factors are influenced, in part, by the current and anticipated labour market situation. Since 1981, the annual number of graduates has averaged 400. The popularity of this course, as indicated by its share of all master's graduates, fell slowly and consistently from 1971 to 1981, but has held constant since that time. If the course's current popularity and faculty capacities to absorb new students hold over the 1987 to 1995 period, again about 400 students per year should graduate from this course. The number of new graduates competing for related employment is therefore expected to be about the same over the projection period as it was between 1981 and 1985.

Destination of Graduates

Upon graduation, a significantly lower-than-average proportion of graduates became first-time labour force entrants. Conversely, a dramatically greater proportion of these graduates, than other master's graduates, continued their education. A smaller proportion (15%) were already in the labour force and had been attending school part-time. The success of those who looked for employment was significantly lower than for other master's graduates, which is evident in their 14% unemployment rate.

Occupations

Economics graduates working full-time two years after graduation were employed mostly as economists with the federal or provincial governments. The remainder were scattered across various other occupations, but were not concentrated in any one of them. Graduates of this course who seek employment as economists face competition primarily from holders of an undergraduate qualification or a MBA.

The Course in Retrospect

A 1984 survey indicated that not only was the transition from school to work significantly less successful for 1982 graduates in Economics than for other master's graduates, but also a greater-than-average proportion of the graduates who found a job thought it did not match the field of study. The survey further indicated, however, that a significantly lower-than-average proportion thought they were over-qualified in their current job. The fact that only about 70% of Economics graduates, compared with 80% of all master's graduates, stated they would make the same educational decision again is probably a reflection of their relatively poor labour market outcome and their lower-than-average annual salary.

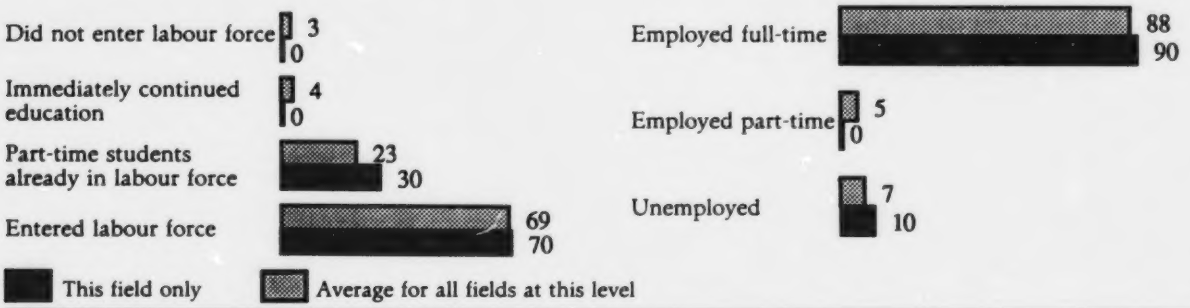
Economics

Doctorate
University (4 years)

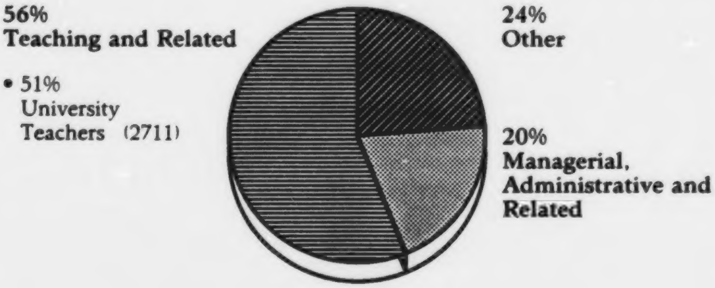
Graduate Trends and Projections

	1971	1981	1985	1986	1995
Number of Graduates	25	61	55	60	60
% of Total Doctorate Graduates	1.5	3.4	2.8	2.8	2.8

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation



Social Sciences and Services

Economics

Doctorate
University (4 years)

Generally, applicants to this program must possess a master's degree, or the equivalent, with first-class standing. The course of study includes all areas of specialization related to Economics, such as agricultural economics, econometrics, labour economics, public finance and transport economics. It takes an average of four years and is available in all provinces except Newfoundland, Prince Edward Island and New Brunswick. The average age at graduation of PhD graduates in Economics (31) is marginally lower than for all PhD graduates (34). The representation of women in the field is increasing as more and more women make it their specialization.

Graduate Trends and Projections

The program's popularity rose during the 1970s, but fell slightly between 1981 and 1985. If the relative popularity of this course and the capacity of relevant faculties to absorb new students hold over the 1987 to 1995 period, 60 students per year should graduate from this course. The number of new graduates competing for related employment is therefore expected to remain about the same over the projection period as it was from 1981 to 1985.

Destination of Graduates

According to 1984 data, all Economics graduates at this level entered the labour force upon completion of their degree. This high level of labour force participation is partly explained by the greater-than-average proportion of graduates who were already in the labour force and who were taking the course on a part-time basis. Among those who looked for work, 90% found full-time work, while the rest remained unemployed.

Occupations

The majority of graduates working full-time had found employment in teaching, especially as university teachers. Another significant proportion had jobs related to management and administration.

The Course in Retrospect

In general, Economics PhD graduates were more positive than others about the labour market outcome of their educational choice. All who had a full-time job thought that it was related to the field of study, were more satisfied with their job than graduates from other fields and were less likely to feel over-qualified for their job. However, a proportion of graduates, significantly lower than in other fields, stated they would be ready to undertake the same educational program if they had to make that choice again.

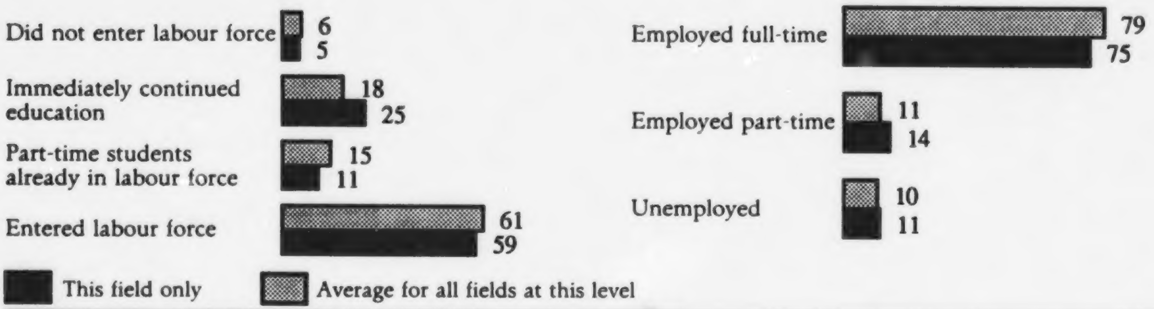
Geography

Undergraduate
University (3 years)

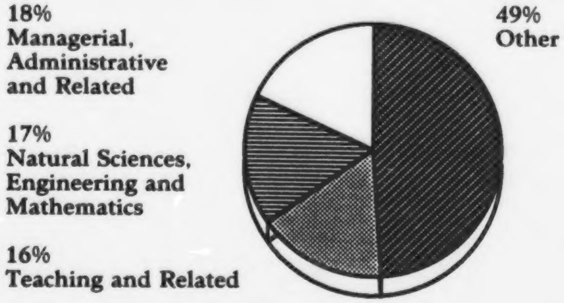
Graduate Trends and Projections

	1971	1981	1985	1986	1995
Number of Graduates	1,683	1,643	1,709	1,810	1,760
% of Total Undergraduate Degrees	2.3	1.7	1.5	1.5	1.5

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation



Geography

Undergraduate
University (3 years)

All provinces except Prince Edward Island offer undergraduate programs in this field of study, including applied geography, biogeography, cartography, cultural and historical geography, environmental geography and human geography. Most universities consider applicants who have completed high school with good standing in courses such as mathematics and biology (Quebec universities require a Diploma of Collegial Studies from Quebec applicants). The average duration of the programs is three years, according to the province and the institution. The representation of women in the field of Geography is below the average for the undergraduate level.

Graduate Trends and Projections

Since the beginning of the 1980s, the number of graduates in this field has decreased, while the total number of qualifications awarded at this level followed an upward trend. The relative popularity of this field therefore, has declined; Geography graduates accounted for 1.5% of all 1985 undergraduate qualifications, compared with 2.3% in 1971. If the current popularity of this course and the capacity of relevant faculties to absorb new students hold over the 1987 to 1995 period, 1,800 students per year should graduate from this field of study.

Destination of Graduates

Apart from the relatively large proportion of graduates who chose to continue their education upon completion of the program, most graduates from this field of study entered the labour market and found work in a proportion comparable to other graduates. Only a slightly higher-than-average number found part-time employment.

Occupations

Graduates employed full-time two years after graduation had jobs in many different areas, not necessarily all related to their course of study. A significant number of them were working in occupations related to management and administration, the natural sciences and teaching. Holders of master's and doctorate degrees in geography were more successful in finding a job related to their program of study.

The Course in Retrospect

Considering the occupations entered by Geography graduates, it is not surprising that only 50% of them found their current job to be related to the field of study, compared with 80% of all graduates from undergraduate courses. Geography graduates were also less satisfied with their job, and a significantly higher-than-average number considered themselves overqualified for the work they were doing. Finally, a dramatically lower-than-average proportion indicated they would be ready to select the same program of study if they had to make that choice again (the lowest value reported at the undergraduate level).

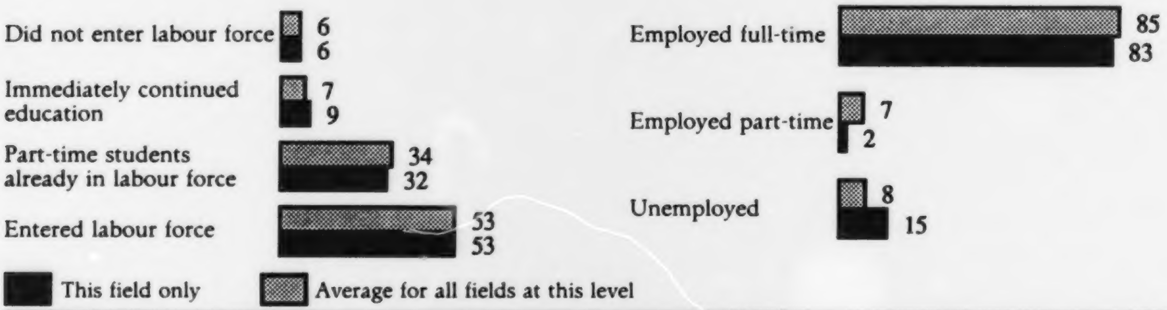
Geography

Master's
University (2 years)

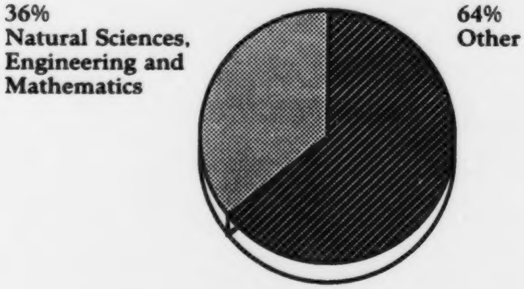
Graduate Trends and Projections

	1971	1981	1985	1986	1995
Number of Graduates	158	180	198	195	175
% of Total Master's Graduates	1.5	1.3	1.2	1.2	1.2

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation



Social Sciences and Services

Geography

Master's
University (2 years)

The master's program in this field includes such areas of study as urban geography, economic geography and human geography. The program prerequisites vary by institution, but in general, candidates must have an honours undergraduate degree, or the equivalent, in this or a closely related field of study from a recognized university. As mentioned in the introduction, holders of graduate diplomas and certificates are included with master's graduates. The diploma or certificate programs are generally shorter than the master's course and may be taken following either an undergraduate or a master's degree. All the 1985 Geography graduates received master's degrees. The master's course is offered in all provinces except Prince Edward Island, Nova Scotia and New Brunswick and usually takes two years, depending on the institution. At some universities, it is possible to graduate through involvement in a CO-OP education program, although according to 1984 data, only about 5% of the graduates received their qualification in this manner. The majority of graduates were men (70%) and were concentrated in Ontario (40%).

Graduate Trends and Projections

Enrollments, and therefore graduations, depend on the capacity of the specific faculty to absorb new students and on the demand for entrance. Both these factors are influenced, in part, by the current and anticipated labour market situation. Since 1981, the annual number of graduates has averaged 175. The popularity of this course, as indicated by its share of all master's graduates, has fallen slowly and consistently since 1971. If the course's current popularity and faculty capacities hold over the 1987 to 1995 period, almost 200 students are expected to graduate from this course per year.

Destination of Graduates

Upon graduation, an average proportion of graduates became first-time labour force entrants; 30% of the graduates were already in the labour force and had been attending school part-time. The success of those who looked for employment was significantly lower than for other master's graduates, largely owing to the lower-than-average proportion who were unable to find part-time employment.

Occupations

Geography graduates who were employed full-time two years after graduation were working mostly in the natural sciences, engineering and mathematics occupations, which include community planners. Others were employed in various other occupations, but were not concentrated in any of them. Graduates of this course who seek employment as community planners face competition primarily from graduates of undergraduate courses in this and the planning and resource management fields of study.

The Course in Retrospect

A 1984 survey indicated that not only was the transition from school to work significantly less successful for 1982 graduates in this field than for other master's graduates, but more Geography graduates thought they were over-qualified for their current job. The survey further indicated that a significantly lower-than-average proportion thought their job matched the field of study, and a lower-than-average number were satisfied with their job. In keeping with these statistics, only about 65% of the graduates, compared with 80% of all master's graduates, indicated that they would follow the same educational route if they had to make this choice again.

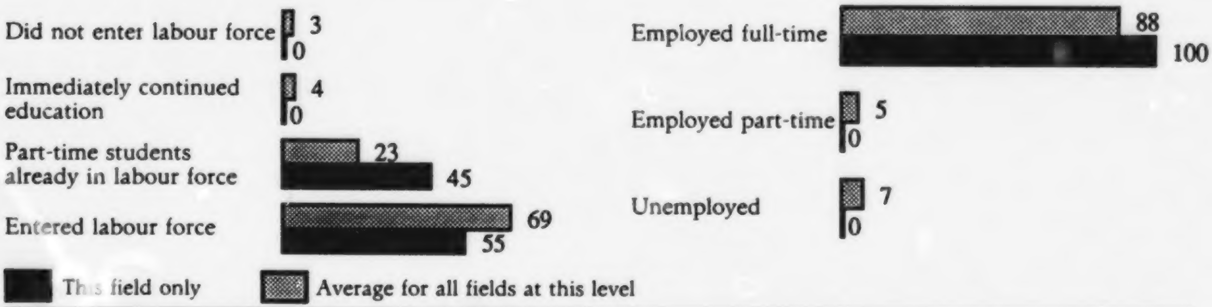
Geography

Doctorate
University (5 years)

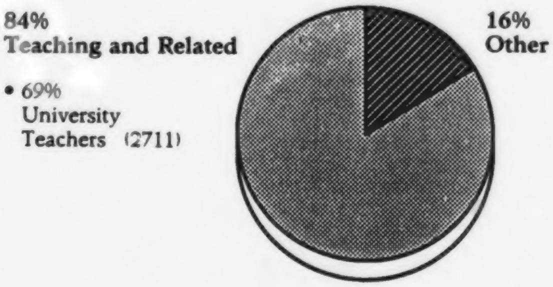
Graduate Trends and Projections

	1971	1981	1985	1986	1995
Number of Graduates	18	29	25	25	25
% of Total Doctorate Graduates	1.1	1.6	1.3	1.3	1.3

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation



Geography

Doctorate
University (5 years)

The doctorate program in Geography comprises such areas of specialization as urban geography, economic geography and human geography. The prerequisite for admission into this program is usually a master's degree in Geography or the equivalent. Rarely is a student admitted without this prerequisite. The program takes an average of five years, depending on the province and the institution, and is offered in all provinces except the Atlantic provinces. Some institutions offer the possibility of taking the course through a CO-OP training program. According to 1984 data, approximately 10% of Geography graduates obtained their degree in this manner. The representation of women in the field was lower than among all PhD graduates as they accounted for only 20% of the graduates in Geography. Compared with graduates in other fields, a significantly greater-than-average proportion are usually enrolled on a part-time basis.

Graduate Trends and Projections

Between 1981 and 1986, the number of graduates in this field varied between 25 and 30. During the 1970s, however, the number of Geography graduates increased significantly, growing from 18 in 1971 to 29 in 1981. Annual averages indicate that the popularity of the program is declining slightly in relation to other fields of study. If the course's current popularity and the capacity of relevant faculties to absorb new students hold over the 1987 to 1995 period, about 30 PhD students are expected to graduate in Geography per year.

Destination of Graduates

A 1984 survey indicated that no 1982 graduates from this field of study pursued their education, but rather all entered the labour force. Such a pattern is partly explained by the fact that many graduates enroll on a part-time basis and have spent previous years in the undergraduate and master's programs. In contrast to the average for this level, all PhD graduates in Geography found full-time work. No graduates from this field of study remained unemployed. The resulting lower-than-average unemployment rate may be partly explained by the large number of graduates who had been enrolled part-time.

Occupations

Two years after obtaining their degree, about 84% of the graduates from this program were working in teaching, especially as university teachers. The others were working in a variety of occupations, but no significant concentrations were observed.

The Course in Retrospect

In keeping with the above-mentioned occupational distribution, all the graduates employed full-time thought their job was related to the field of study, and an average proportion were satisfied with their job. A smaller-than-average number thought that they had more education than required in their job. Generally, Geography graduates were more likely than other PhD graduates to indicate they would choose the same field of study if they had to make the choice again.

Law

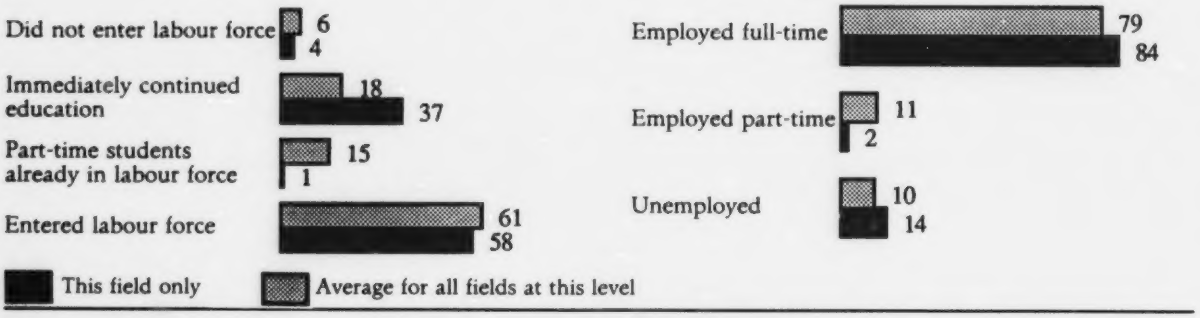
Undergraduate
University (3 years)

Social Sciences and Services

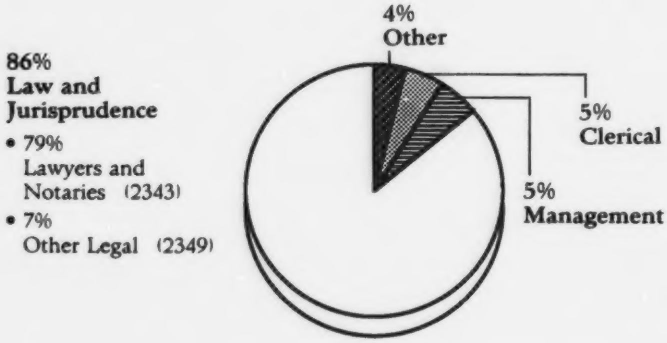
Graduate Trends and Projections

	1971	1981	1985	1986	1995
Number of Graduates	1,958	3,129	3,192	3,370	3,280
% of Total Undergraduate Degrees	2.7	3.2	2.8	2.8	2.9

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation



Social Sciences and Services

Law

Undergraduate
University (3 years)

Law is one of the few undergraduate courses which, in most provinces, requires at least two years of undergraduate training. It is a three-year program leading to a Bachelor of Law degree (LLB). All provinces, with the exception of Newfoundland and Prince Edward Island, offer the program in one or more universities. Once a predominately male field of study, Law is becoming the choice of more and more women; by 1985, women were receiving almost one-half of all LLBs awarded.

Graduate Trends and Projections

Enrollments, and thus graduations, depend on the capacity of the specific faculty to absorb new students and on the demand for entrance. Both these factors are influenced by the current labour market situation. Since 1981, the annual average number of graduates has been approximately 3,200. The relative popularity of the field has not changed much in the past 16 years. Graduates in Law usually represent 3% of all undergraduate degree, diploma and certificate recipients. If the relative popularity of this course and faculty capacities hold over the 1987 to 1995 period, 3,400 students should graduate in Law per year.

Destination of Graduates

Law graduates are much more likely to continue their education than other bachelor's graduates. The complexity of today's society and laws has made the taking of double degrees, such as Law and Business, a prudent career move. A 1984 survey indicated that roughly 60% of Law graduates were in the labour force two years after graduation. Approximately 15% of those looking for work remained unemployed, a larger proportion than for bachelor's graduates as a whole. Since most graduates practice law when they finish their degree, roughly 98% of full-time employed Law graduates were self-employed (in private practice) two years after graduation. A significantly lower-than-average proportion of Law graduates become paid workers, which highlights private practice as an employment status.

Occupations

Due to the specific focus of their training, most graduates work as lawyers or notaries, while a few enter management occupations. Graduates employed in the legal profession and in clerical occupations are usually Law graduates involved in the articling process. Although not all graduates became lawyers, according to 1984 data, they must all be considered as a potential source of supply for this occupation.

The Course in Retrospect

In general, LLB graduates were more satisfied with their course of study than other bachelor's graduates. The majority stated they would follow the same educational route if they had to make the choice again, and a much smaller proportion of Law graduates than other graduates considered themselves over-qualified for their present job.

Planning and Resource Management

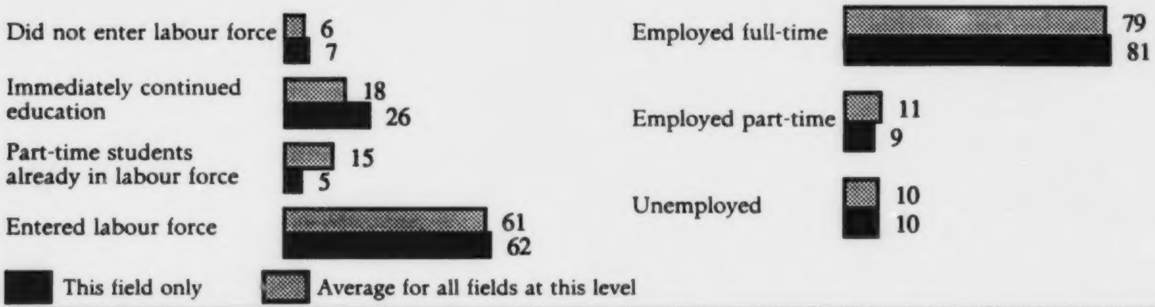
Undergraduate
University (4 years)

Social Sciences and Services

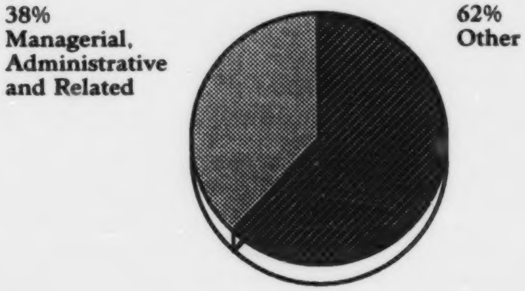
Graduate Trends and Projections

	1971	1981	1985	1986	1995
Number of Graduates	73	562	691	720	700
% of Total Undergraduate Degrees	0.1	0.6	0.6	0.6	0.6

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation



Planning and Resource Management

Undergraduate
University (4 years)

This field of study includes university programs dealing with environmental studies, ecology, environmental design and resource development as well as city, urban and rural planning. The programs take an average of four years, depending on the province and the institution, and are offered in Nova Scotia, Quebec, Ontario, Manitoba and Alberta. Generally, universities will consider applicants who have completed high school with good standing in courses such as biology, chemistry, mathematics and physics (Quebec students applying to a Quebec university must have a Diploma of Collegial Studies). The representation of women in this major field of study in 1985 (35%) was below the average for the whole undergraduate level (55%).

Graduate Trends and Projections

The number of graduates in this field rose markedly during the 1970s, and has been growing steadily since then. Since 1981, more than 600 persons have graduated in this field each year, while the relative popularity of the course has remained about the same. If the course's current popularity and the capacity of specific faculties to absorb new students hold over the 1987 to 1995 period, 700 students should graduate in Planning and Resource Management per year.

Destination of Graduates

A significantly greater-than-average proportion of graduates chose to pursue their education upon graduation. The proportion who entered the labour force was lower than average for this level. Those who looked for work were as successful as other graduates, since about 90% found jobs. Almost no graduates were enrolled part-time during the final semester of their program.

Occupations

Two years after obtaining their degree, 40% of the graduates who were employed full-time were working in management and administration or in occupations such as community planner. In light of these results, it appears that graduates from this field must compete with university graduates from Other Related Administrative Studies and with recipients of master's degrees in Planning and Resource Management.

The Course in Retrospect

Although their unemployment rate was comparable to that of other graduates, Planning and Resource Management graduates experienced a labour market outcome that was less favourable than average. They were less likely to find employment related to their course of study and were less satisfied with their job than other graduates. Those surveyed were also more likely to consider themselves over-qualified for their job. These results may partly account for the slightly lower-than-average number of graduates who stated they would enroll in the same educational program if they had to make that choice again.

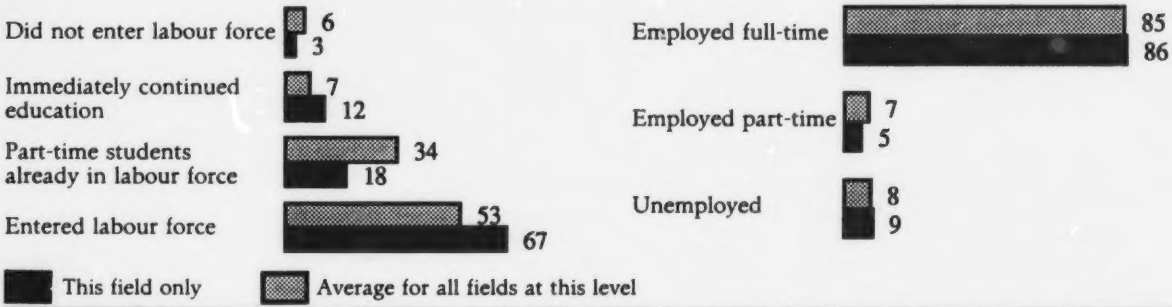
Planning and Resource Management

Master's
University (2 years)

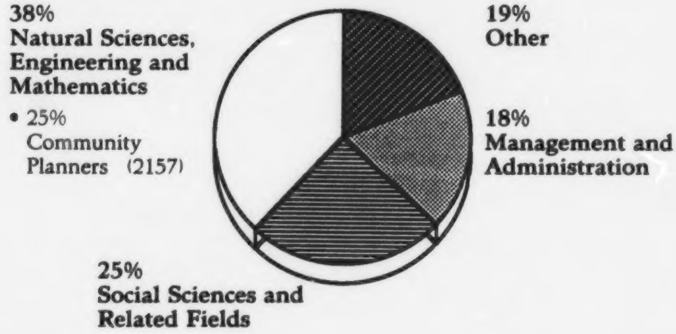
Graduate Trends and Projections

	1971	1981	1985	1986	1995
Number of Graduates	93	267	354	350	315
% of Total Master's Graduates	0.9	1.9	2.1	2.1	2.1

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation



Planning and Resource Management

Master's
University (2 years)

At the master's level, this field includes regional/rural/urban/city planning, community development, environmental studies and resource management. The entrance prerequisites usually include an honours undergraduate degree, or the equivalent, in this or a closely related field of study (Geography) from a recognized university. (Holders of graduate diplomas and certificates are included with master's graduates.) The diploma or certificate programs are generally shorter than the master's course and may be taken following either an undergraduate or a master's degree. Almost all the 1985 graduates in this field (98%) received degrees rather than diplomas or certificates. The master's course is offered in all provinces except Newfoundland, Prince Edward Island, New Brunswick and Saskatchewan and usually takes two years, depending on the institution. At some universities, it is possible to graduate through involvement in a CO-OP education program, although according to 1984 data, only about 5% of the graduates received their qualification in this manner. The majority of graduates were men (65%) and were concentrated in Quebec (35%).

Graduate Trends and Projections

Enrollments, and therefore graduations, depend on the capacity of the specific faculty to absorb new students and on the demand for entrance. Both these factors are influenced, in part, by the current and anticipated labour market situation. Since 1981, the annual number of graduates has averaged 325. The popularity of this course, as indicated by its share of all master's graduates, rose markedly between 1971 and 1981, but since that time has remained fairly stable. If the course's current popularity and faculty capacities hold over the 1987 to 1995 period, 300 students per year should graduate from this field of study. The number of new graduates competing for related employment is therefore expected to be about the same over the projection period as it was between 1981 and 1985.

Destination of Graduates

Upon graduation, a dramatically greater-than-average proportion of graduates became first-time labour force entrants. A greater-than-average proportion of them continued their education, while about 20% were already in the labour force and had been attending school part-time. The success of graduates who looked for employment was similar to that of other master's graduates, although a slightly lower-than-average proportion were able, by design or circumstance, to find part-time work.

Occupations

Planning and Resource Management graduates who were employed full-time two years after graduation were working mostly as community planners in local government. Others had jobs in various occupations, but were not concentrated in any one. Graduates of this course who seek employment face competition primarily from Geography graduates and from graduates in this field at the undergraduate and doctorate levels.

The Course in Retrospect

A 1984 survey indicated that although the transition from school to work was as successful for 1982 graduates in this course of study as for other master's graduates, the graduates in this field had some misgivings about the transition. A slightly lower-than-average proportion thought the field of study matched their present job, a dramatically greater-than-average proportion were not satisfied with their job and about 60% deemed they possessed more skills than their job required. As a result of this low level of job satisfaction and an average annual salary lower than the average for the master's level, only about 60% of the graduates, compared with 80% of all master's graduates, indicated they would follow the same educational route if they had to make this choice again.

Political Science

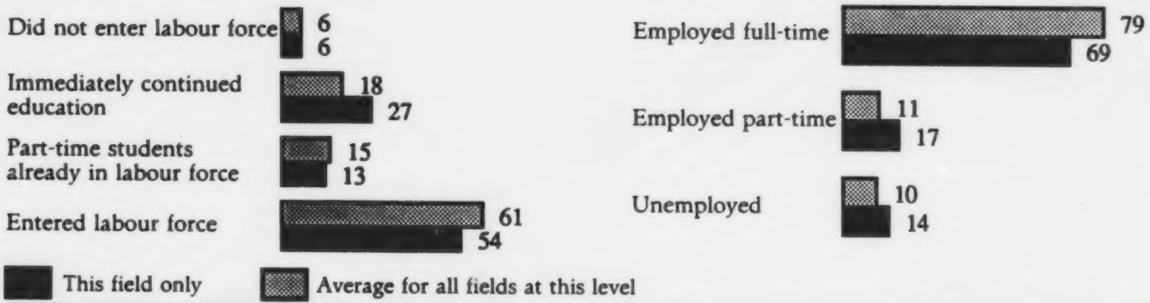
Undergraduate
University (3 years)

Social Sciences and Services

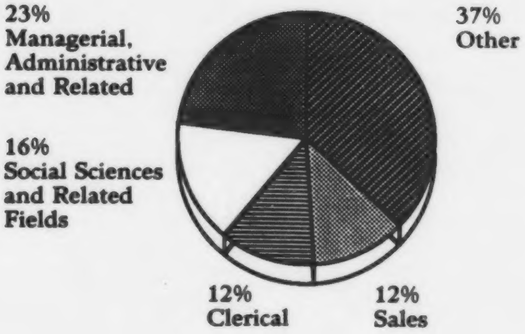
Graduate Trends and Projections

	1971	1981	1985	1986	1995
Number of Graduates	1.468	1.771	2.479	2.610	2,540
% of Total Undergraduate Degrees	2.0	1.8	2.2	2.2	2.2

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation



Political Science

Undergraduate
University (3 years)

This field of study covers university programs such as political science, international relations, comparative politics and political theory and methodology. All provinces offer these undergraduate programs, which last an average of three years, depending on the province. The general admittance requirement is a high-school diploma (Quebec students applying to a Quebec institution must have a Diploma of Collegial Studies). Those who graduated from this field in 1982 were, on average, 25 years old, and 40% of the graduates were women.

Graduate Trends and Projections

Although this field of study has produced an increasing number of graduates since the beginning of the 1970s, its share of all undergraduate qualifications awarded has remained fairly stable. Almost every year, Political Science accounts for roughly 2% of the graduating population. Since 1981, approximately 2,100 students per year have received an undergraduate degree in this field. If the relative popularity of this course, and the capacity of relevant faculties to absorb new students hold over the 1987 to 1995 period, 2,600 students should graduate in Political Science per year.

Destination of Graduates

A larger proportion of graduates in Political Science than in other undergraduate fields pursued their schooling, which reduced the proportion of graduates who participated in the labour force upon graduation. Those who looked for work were not as successful as graduates from other fields, since they experienced a higher unemployment rate and had more difficulty finding a full-time job.

Occupations

Graduates who were working full-time two years after obtaining their degree were employed in occupations related to management and administration, the social sciences, clerical work and sales. In light of this occupational distribution, it appears Political Science graduates are in competition for jobs with other university graduates from related social sciences fields and business administration.

The Course in Retrospect

The labour market situation faced by graduates from this field was less favourable than for graduates in other fields. Because of the areas in which they found work, a dramatically lower-than-average proportion of graduates reported that their job was related to the program of study, and a lower-than-average number were satisfied with their job. More than half the graduates reported having more qualifications than necessary for their current job, a proportion much higher than in other fields. Graduates in Political Science were also less likely to state they would repeat the same educational choice if they had to decide again. Master's and doctorate degree recipients in Political Science had a relatively better labour market outcome.

Political Science

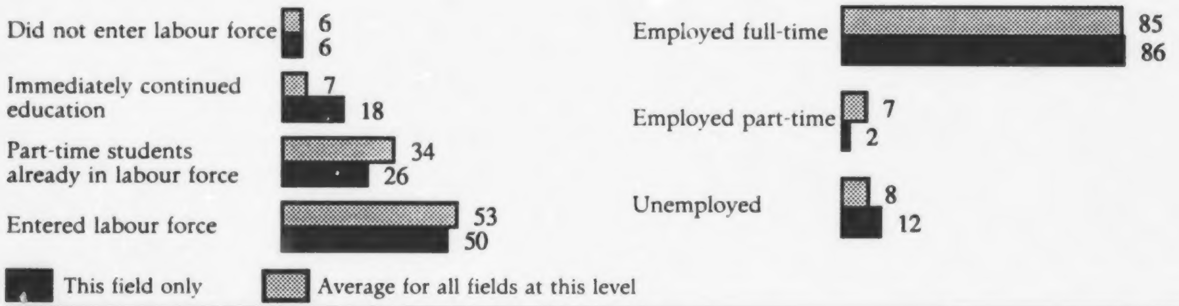
Master's
University (2 years)

Social Sciences and Services

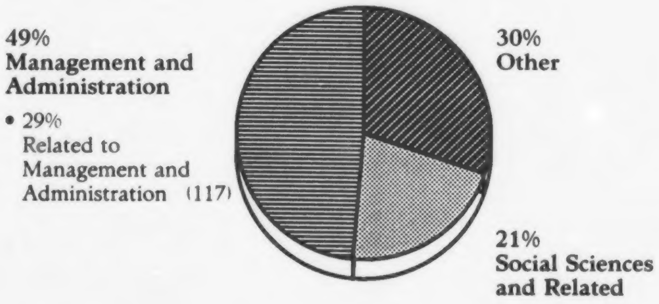
Graduate Trends and Projections

	1971	1981	1985	1986	1995
Number of Graduates	167	293	345	340	310
% of Total Master's Graduates	1.6	2.0	2.1	2.1	2.1

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation



Political Science

Master's
University (2 years)

The Political Science master's program includes such areas of specialization as comparative politics, government, international relations, political history, political thought and urban politics. The entrance prerequisites for this field of study vary by institution, but in general, candidates must have an honours undergraduate degree, or the equivalent, in this or a closely related field of study (history) from a recognized university. As mentioned in the introduction, holders of graduate diplomas and certificates are included with master's graduates. The diploma or certificate programs are generally shorter than the master's course and may be taken following either an undergraduate or a master's degree. In this instance, almost all the 1985 graduates (98%) received degrees rather than diplomas or certificates. The master's course is offered in all provinces except Prince Edward Island, and usually lasts two years, depending on the institution. According to 1984 data, the majority of graduates were men (65%) and were concentrated in Ontario (55%).

Graduate Trends and Projections

Enrollments, and therefore graduations, depend on the capacity of the specific faculty to absorb new students and on the demand for entrance. Both these factors are influenced, in part, by the current and anticipated labour market situation. Since 1981, the annual number of graduates has averaged 300. The popularity of this course, as indicated by its share of all master's graduates, rose slowly, yet consistently, between 1971 and 1985. If the course's current popularity and faculty capacities hold over the 1987 to 1995 period, 300 students per year should graduate from this course.

Destination of Graduates

Upon graduation, a slightly lower-than-average proportion of graduates became first-time labour force entrants, a statistic resulting largely from the fact that more of the graduates in this field, than other master's graduates, continued their education. The success of graduates who looked for employment was lower than for other master's graduates, since those who were unable to find full-time employment were also unable to find part-time work.

Occupations

Political Science graduates who were working full-time two years after graduation were employed mostly in management and administrative occupations in the federal government. Others held jobs in other occupations, but were not concentrated in any one of them.

The Course in Retrospect

A 1984 survey indicated that the transition from school to work was less successful for 1982 graduates from this course of study than for other master's graduates, and that the Political Science graduates were less positive about this transition. A lower-than-average proportion stated that the field of study matched their current job, a slightly lower-than-average proportion were satisfied with their job and 65% of the graduates thought they possessed more skills than their present job required. However, the decision to enter a specific field of study is not solely related to the current or anticipated labour market situation. In spite of the above statistics, more of the graduates in this field than in others stated they would select the same course of study if they had to decide again.

Political Science

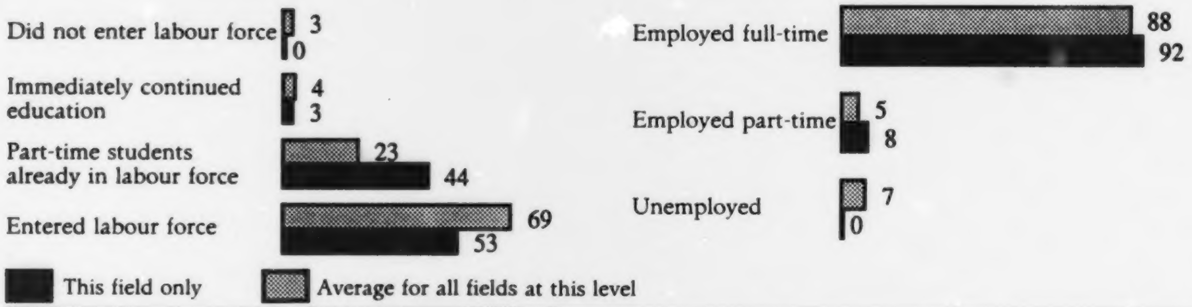
Doctorate
University (4 years)

Social Sciences and Services

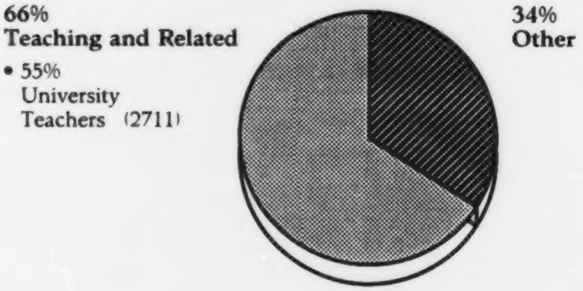
Graduate Trends and Projections

	1971	1981	1985	1986	1995
Number of Graduates	9	27	39	40	40
% of Total Doctorate Graduates	0.6	1.5	2.0	2.0	2.0

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation



Social Sciences and Services

Political Science

Doctorate
University (4 years)

This program of study comprises many different areas of specialization, such as international relations, political history and comparative politics. Applicants to the program are evaluated on the basis of their master's degree program in Political Science, or the equivalent, from a recognized university. The PhD program usually takes four years, according to the province and the institution, and is offered in Nova Scotia, Quebec, Ontario, Alberta and British Columbia. The average age of Political Science graduates in 1982 was 35, which was comparable to the average for other fields. The proportion of graduates who were enrolled part-time during the last semester before graduation was significantly higher than the average for the doctorate level. The Political Science field is becoming less and less dominated by men; in 1985, women represented about 25% of the students who were enrolled.

Graduate Trends and Projections

The number of doctorate degrees awarded in this field of study grew from nine in 1971 to 39 in 1985. The program also became increasingly popular between 1971 and 1986. If the course's current popularity and the capacity of relevant faculties to absorb new students hold over the 1987 to 1995 period, 40 students per year should graduate from this field of study.

Destination of Graduates

Because of the importance of part-time enrollment in this field, the proportion of graduates who entered the labour force was significantly lower than average. Those who looked for work were more successful in securing a full-time job than their colleagues who graduated from other fields of study at this level. No graduates remained unemployed, as those who could not find full-time jobs at least found part-time work.

Occupations

According to 1984 data, two-thirds of the graduates who were working had found jobs in teaching, mostly as university teachers. The others had entered various positions, but were not concentrated in any particular field.

The Course in Retrospect

In general, the PhD graduates in Political Science who found full-time jobs were all satisfied with their current job, even though a higher-than-average proportion considered themselves over-qualified for their job.

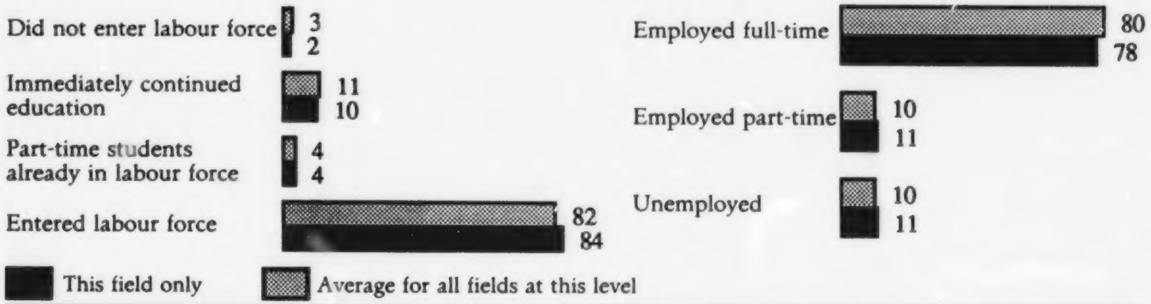
Protection and Correction Services

Career Program
Community College (2 years)

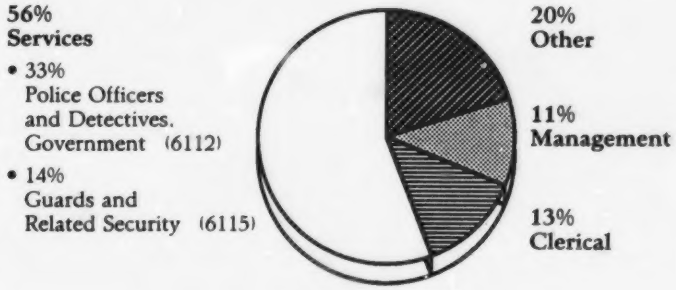
Graduate Trends and Projections

	1977	1981	1985	1986	1995
Number of Graduates	776	1,408	2,018	2,050	1,925
% of Total Community College Graduates	2.1	3.0	3.4	3.4	3.4

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation



Social Sciences and Services

Protection and Correction Services

Career Program
Community College (2 years)

This field of study includes programs in such areas as police technologies, protection technologies (fire, security, safety), correction technologies and para-legal technologies/legal studies/legal assistant. The entrance prerequisites for this field of study vary by institution, but in general, candidates must pass an interview, have a relevant letter of recommendation, take diagnostic English (French) and mathematics tests, have some related work experience, pass a medical examination and have completed advanced English (French) and mathematics courses at the high-school level. The course is offered in all provinces except Newfoundland, New Brunswick and Saskatchewan and generally takes two years, depending on the institution. At some institutions, students may graduate through involvement in a CO-OP program. According to 1984 data, roughly 20% of the graduates obtained their certificate or diploma in this manner.

Graduate Trends and Projections

Enrollments, and therefore graduations, depend on the capacity of the specific faculty to absorb new students and on the demand for entrance. Both these factors are influenced, in part, by the current and anticipated labour market situation. Since 1981, the annual number of graduates has approximated 1,700. The popularity of this course, as reflected by the proportion of all community college graduates, rose significantly between 1977 and 1986. If the course's current popularity and faculty capacities hold over the 1987 to 1995 period, about 2,000 students per year should graduate from this course.

Destination of Graduates

Protection/Correction graduates had a slightly greater-than-average tendency to enter the labour force after graduation than other college graduates. They also had a slightly lower-than-average probability of finding full-time employment and a slightly greater-than-average probability of remaining unemployed. Roughly 10% of the graduates continued their formal education.

Occupations

Most Protection/Correction graduates who were working full-time two years after graduation were employed as police officers and detectives (government) and as guards and related security workers in the protective services industry. The remainder had jobs in various other occupations, particularly in the clerical and management fields.

The Course in Retrospect

The transition from school to work experienced by Protection/Correction graduates was slightly worse than for other graduates, which is reflected by the fact that a significantly lower-than-average proportion of graudates thought their current job matched the field of study and a dramatically greater-than-average proportion considered themselves overqualified for their job. In spite of these somewhat negative results, a slightly greater-than-average proportion were satisfied with their present job and stated they would select the same course if they had to choose again.

Psychology

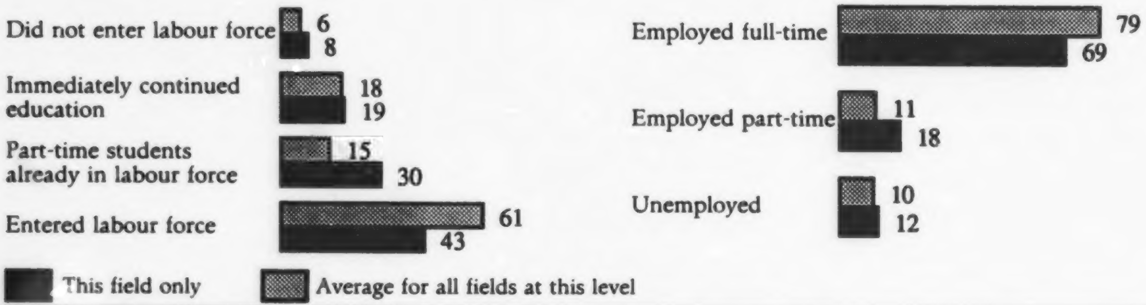
Undergraduate
University (3 years)

Social Sciences and Services

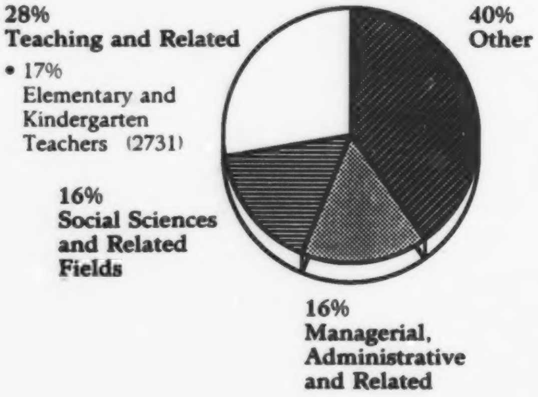
Graduate Trends and Projections

	1971	1981	1985	1986	1995
Number of Graduates	3,217	4,423	5,511	5,790	5,580
% of Total Undergraduate Degrees	4.4	4.5	4.9	4.9	4.9

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation



Social Sciences and Services

Psychology

Undergraduate
University (3 years)

This field of study covers such university programs as applied psychology, child study and psychology, experimental psychology, psychology or behavioural studies. Most universities require applicants to have completed high school (or a Diploma of Collegial Studies, in the case of Quebec students applying to a Quebec university). The program is available in all provinces and has an average duration of three years. The representation of women in this field of study is higher than the average at the undergraduate level. In 1985, women accounted for about 75% of the graduates in Psychology. A significant proportion of the graduates in this field were enrolled part-time during their final semester.

Graduate Trends and Projections

Since 1981, an annual average of 4,900 persons graduated in Psychology at the undergraduate level, compared with 3,800 during the 1970s. In spite of this increase, the percentage of Psychology graduates as a proportion of all graduates at this level, changed only slightly, fluctuating between 4% and 5%. In recent years, an increasing number of persons have graduated from this field through a program leading to a diploma or certificate. If the relative popularity of this course and the capacity of relevant faculties to absorb new students hold over the 1987 to 1995 period, 5,800 students per year should graduate in Psychology.

Destination of Graduates

If the proportion of students who were enrolled part-time during their final semester (twice that in other undergraduate courses) is added to the proportion who entered the labour force upon completion of their degree, then roughly 75% of the graduates were in the labour force. Graduates who looked for work experienced slightly above-average unemployment, and had more problems in securing a full-time job than other graduates at this level.

Occupations

The teaching field offered most of the job opportunities to these Psychology graduates, especially at the elementary and kindergarten levels. Some graduates, however, found work in occupations related to the social sciences and management and administration. Graduates from other fields related to teaching and the social sciences at the college and university levels are in competition with Psychology graduates for these jobs.

The Course in Retrospect

Although a lower-than-average proportion of graduates thought their job was related to the program of study, and although they were likely to think they were over-qualified for their current job, Psychology graduates reported a level of job satisfaction roughly comparable to that of other graduates who were employed full-time. However, a smaller-than-average proportion stated they would be ready to enroll in the same program of study if they had the opportunity to make that decision again. Graduates at the master's and doctorate levels reported relatively better labour market outcomes.

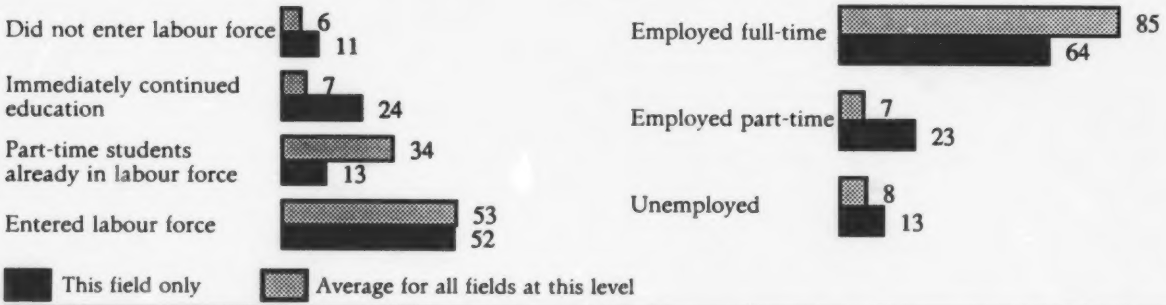
Psychology

Master's
University (2 years)

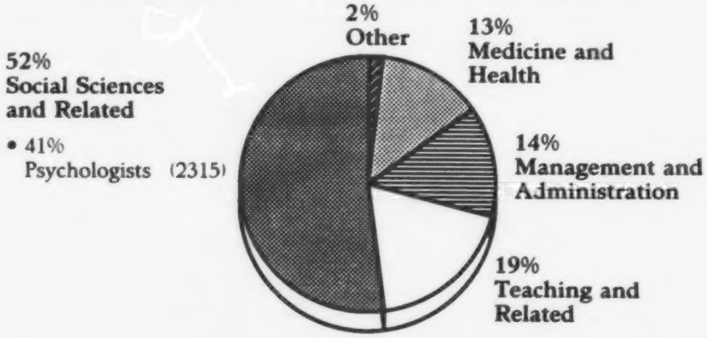
Graduate Trends and Projections

	1971	1981	1985	1986	1995
Number of Graduates	411	540	551	545	490
% of Total Master's Graduates	3.9	3.8	3.3	3.3	3.3

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation



Social Sciences and Services

Psychology

Master's
University (2 years)

The Psychology master's course includes such areas of study as abnormal psychology, pathological psychology, behavioural psychology, child psychology, cognitive development, comparative psychology, learning theory, social psychology and clinical psychology. The prerequisites for entrance generally include an honours undergraduate degree, or the equivalent, in this or a closely related field of study from a recognized university. (Holders of graduate diplomas and certificates are included with master's graduates.) The diploma or certificate programs are generally shorter than the master's course and may be taken following either an undergraduate or a master's degree. About 95% of the 1985 graduates in this field received degrees rather than diplomas or certificates. The master's course is offered in all provinces except Prince Edward Island and usually takes two years, depending on the institution. In some institutions, it is possible to graduate through involvement in a CO-OP education program. According to 1984 data, roughly 10% of the graduates in this course obtained their qualification in this manner. The majority of graduates were women (65%) and were concentrated in Quebec (45%).

Graduate Trends and Projections

Enrollments, and therefore graduations, depend on the capacity of the specific faculty to absorb new students and on the demand for entrance. Both these factors are influenced, in part, by the current and anticipated labour market situation. Since 1981, the annual number of graduates has averaged 525. The popularity of this course, as indicated by its share of all master's graduates, held fairly constant between 1971 and 1981, but since then has been declining. If the course's current popularity and faculty capacities hold over the 1987 to 1995 period, about 500 students per year should graduate from this course. The number of new graduates competing for related employment is therefore expected to be slightly lower over the projection period than it was over the 1981 to 1985 period.

Destination of Graduates

Upon graduation, an average proportion of graduates became first-time labour force entrants, while a dramatically greater-than-average proportion continued their education. Those graduates who looked for employment were less successful than were other master's graduates; the success rate would have been even worse had not 25% of them found part-time employment.

Occupations

The majority of Psychology master's graduates working full-time two years after graduation were employed as psychologists in hospitals or in elementary and secondary schools. The remainder had jobs in various other occupations, particularly in the teaching, management and health fields. Graduates of this course who seek employment face competition primarily from other Psychology graduates with either a bachelor's or a doctorate degree.

The Course in Retrospect

A 1984 survey indicated that although the transition from school to work was less successful for 1982 graduates from this course than for other master's graduates, an average proportion of Psychology graduates thought the field of study matched their current job, and more of them than other master's graduates were satisfied with their job. A proportion, dramatically lower than the average for the master's level, considered themselves over-qualified for their current job. However, an average proportion of graduates still indicated that they would follow the same educational route if they had to make the choice again.

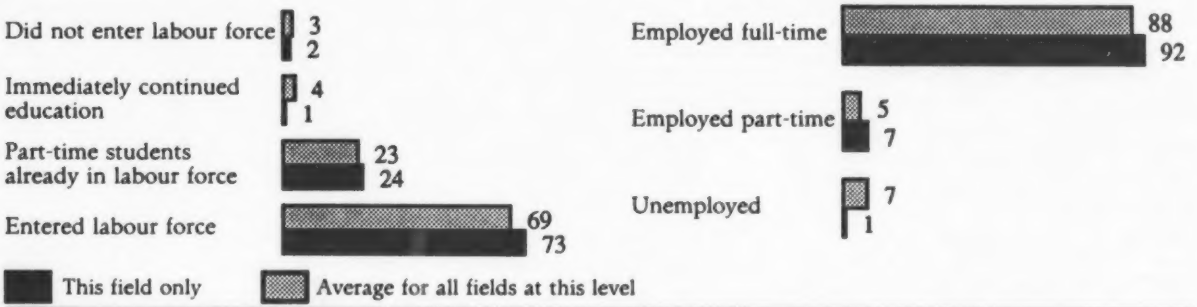
Psychology

Doctorate
University (4 years)

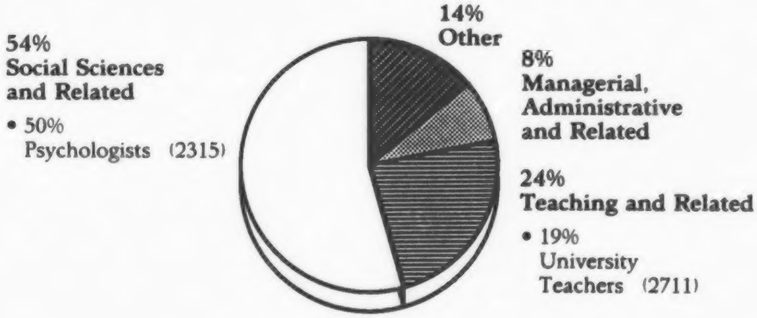
Graduate Trends and Projections

	1977	1981	1985	1986	1995
Number of Graduates	119	185	169	180	185
% of Total Doctorate Graduates	7.3	10.2	8.5	8.5	8.5

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation



Social Sciences and Services

Psychology

Doctorate
University (4 years)

Specializations included at this level in Psychology are child study, learning theory, physiological psychology and behavioural psychology. The usual qualification for admission to the doctorate program is a master's degree, or the equivalent, and a detailed knowledge of the field of specialization. In some institutions, candidates for a doctorate degree in clinical psychology can enter the program directly from the bachelor's level, although no master's degree is awarded at the intermediary stage. The program usually takes four years, depending on the province and the institution and is offered by all provinces except Prince Edward Island. In some universities, students may take the course of study through a CO-OP program. According to 1984 data, roughly 5% of Psychology graduates obtained their degree in this manner. The average age of PhD graduates in Psychology is 34. The representation of women in this program of study is greater than in other fields; in 1985, women accounted for about 40% of the graduates.

Graduate Trends and Projections

The Psychology PhD program is the largest area of specialization at the doctorate level. The number of doctorate degree recipients in this program grew by more than 40% between 1971 and 1985. At the same time, the percentage of graduates as a proportion of all graduates in other fields of study at this level increased from 7.3% in 1971 to 10.2% in 1981 before declining to 8.5% in 1985. If the relative popularity of this course and the capacity of relevant faculties to absorb new students hold over the 1987 to 1995 period, about 200 students per year should graduate from this field of study.

Destination of Graduates

Upon graduation few graduates decided not to enter the labour force or immediately to pursue their education. Almost three-quarters of the graduates entered the labour force, a proportion dramatically higher than in other fields. A greater-than-average proportion secured a full-time position or found part-time work. Unemployment among these graduates was almost non-existent.

Occupations

Of the graduates who were working full-time, the majority had found work in social sciences occupations, mostly as psychologists. Another large proportion were employed in jobs related to teaching, especially as university teachers, and in management occupations.

The Course in Retrospect

A 1984 survey of graduates from this field of study indicated a level of job satisfaction roughly comparable to the doctorate level average, which is based on indicators rating the graduates' current job, the correspondence of their job to the program of study and their level of satisfaction with their job. A slightly lower-than-average proportion of graduates stated they would make the same educational choice if they had to decide again.

Service Industries Technologies

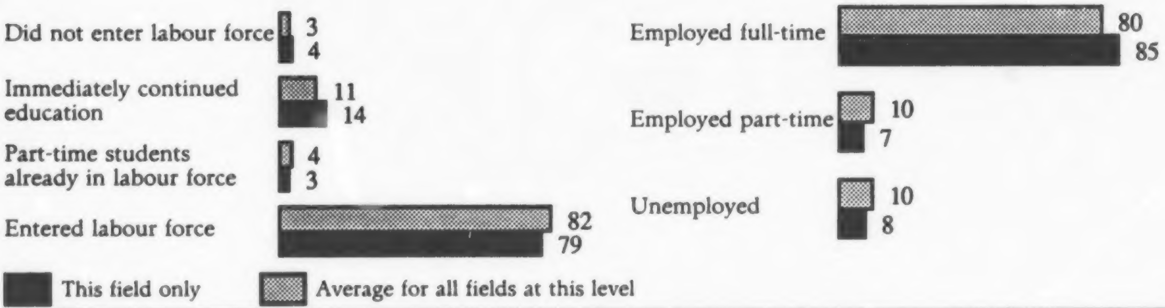
Career Program
Community College (2 years)

Social Sciences and Services

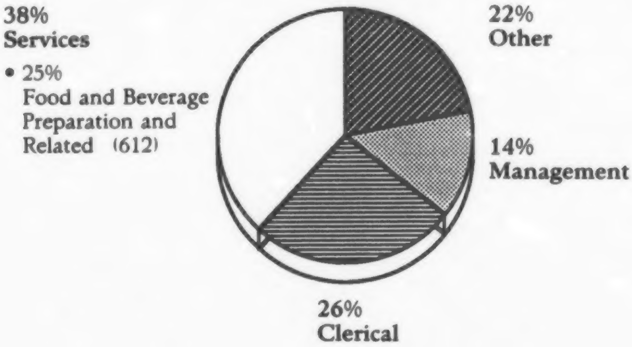
Graduate Trends and Projections

	1977	1981	1985	1986	1995
Number of Graduates	255	424	786	795	750
% of Total Community College Graduates	0.7	0.9	1.3	1.3	1.3

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation



Social Sciences and Services

Service Industries Technologies

Career Program
Community College (2 years)

This field of study includes programs in such areas as food services, baking, cooking, food serving, home economics, laundry and dry cleaning, hospitality and tourism. The prerequisites for entrance vary according to the institution, but in general, candidates must pass an interview, take a diagnostic English (French) test, pass a medical examination, have some related work experience and have successfully completed senior high-school courses in English (French), mathematics and in some instances, chemistry. The course is offered in all provinces except Newfoundland, New Brunswick and Manitoba and generally takes two years, depending on the institution. At some colleges, students may graduate through involvement in a CO-OP program, and according to 1984 data, a significant proportion of graduates in this course (30%) received their certificate or diploma in this manner. The majority of graduates were women (55%) and were concentrated in Ontario (45%).

Graduate Trends and Projections

Enrollments, and therefore graduations, depend on the capacity of the specific faculty to absorb new students and on the demand for entrance. Both these factors are influenced, in part, by the current and anticipated labour market situation. Since 1981, the annual number of graduates has averaged 650. The popularity of this course, as reflected by its share of all community college graduates, increased slowly and consistently between 1977 and 1986. If the course's current popularity and faculty capacities hold over the 1987 to 1995 period, about 800 students per year should graduate from this field of study.

Destination of Graduates

Upon graduation, slightly more of these graduates than other college graduates continued their education, and fewer entered the labour force. The transition from school to work was more successful for Service Industries Technologies graduates than for other graduates: a smaller proportion than average were unable to find a job (an 8% unemployment rate), and a larger-than-average proportion found full-time employment.

Occupations

Most Service Industries Technologies graduates who were working full-time two years after graduation were employed in the food and beverage preparation and related occupations in the food and beverage service industry. The remainder were employed in various other occupations, particularly in the clerical and management fields.

The Course in Retrospect

Although a greater-than-average proportion of graduates were satisfied with their current job, a lower-than-average proportion thought that their current job matched the field of study, and a significantly larger number than average considered themselves over-qualified for their job. Approximately 55% of these graduates, compared with 65% of all college graduates, stated they would follow the same educational route if they had to choose again.

Service Industries Technologies (Cooking)

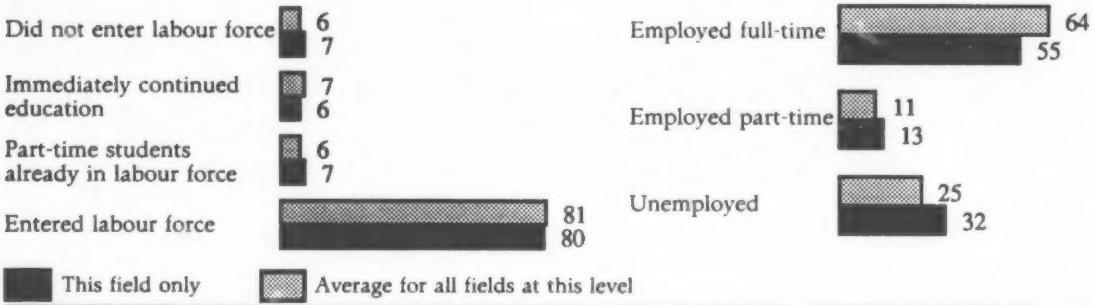
Trade/Vocational Programs
Public Trade Schools and Similar Institutions (9 months)

Graduate Trends

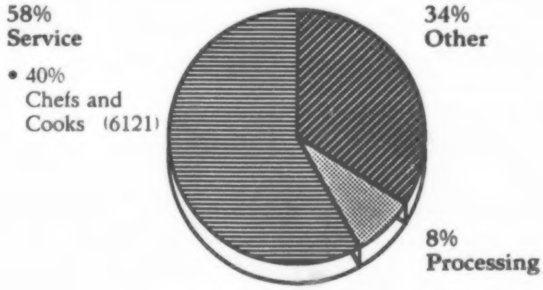
	1983-84*
Number of Graduates	1,921
% of Total Trade/Vocational Graduates	2.6

* This is the only period, since 1977, for which comprehensive and reliable data covering all provinces, territories and fields of study were available. Given this lack of historical data and the recent release of the data for 1983-84, no projections are yet available.

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation



Service Industries Technologies (Cooking)

Trade/Vocational Programs
Public Trade Schools and Similar Institutions (9 months)

This program prepares students to work as cooks or chefs. The basic requirement for entrance to the program varies between Grade 10 and high-school completion, depending upon the type of program (skill upgrading or pre-emplyment), the institution and the province. The course takes an average of nine months and, in 1983-1984, was offered in all provinces except Quebec. Trainees who completed the program in 1982 were slightly older than the average for this level. According to 1984 data, as many men as women were enrolled in this training program.

Graduate Trends and Projections

In 1983-1984, there were 1,921 successful completions in this field of study, which represented more than 2% of all completions at the trade level. If the relative popularity of this course and the capacity of specific faculties to absorb new students hold over the 1987 to 1995 period, the average annual number of graduates is expected to decline slightly, as a result of the declining size of the corresponding population age group.

Destination of Graduates

Graduates from this program faced a difficult situation in the labour market. They entered the labour force in a proportion comparable with that in other fields, but they were significantly less successful in finding a job: the proportion of those who remained unemployed was significantly higher than the average at this level.

Occupations

Two years after graduation, graduates who were working full-time were employed mostly in service occupations, especially as chefs and cooks. Other graduates found jobs in processing occupations while the rest were employed in a variety of other occupations. Graduates in related fields, such as food serving and other food preparation, at this level and at the college level compete with graduates from this field for jobs as chefs and cooks.

The Course in Retrospect

Generally, graduates who were employed full-time reported a level of satisfaction with their job and their educational program that was comparable to the average at this level. A slightly higher proportion than average thought they had more education than required by their job. College graduates in related fields fared relatively better in the labour market, as indicated by their lower unemployment rate.

Service Industries Technologies (Other Food Preparation)

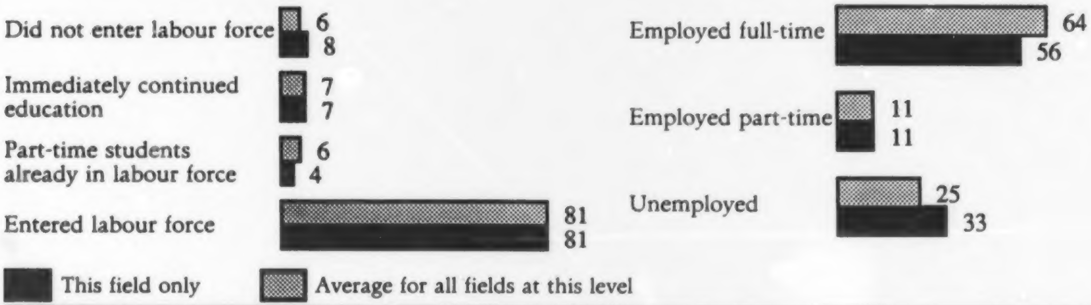
Trade/Vocational Programs
Public Trade Schools and Similar Institutions (7 months)

Graduate Trends

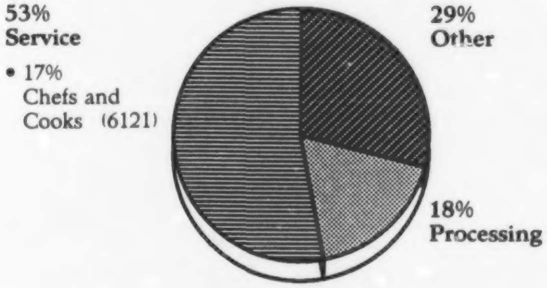
	1983-84*
Number of Graduates	1,565
% of Total Trade/Vocational Graduates	2.1

* This is the only period, since 1977, for which comprehensive and reliable data covering all provinces, territories and fields of study were available. Given this lack of historical data and the recent release of the data for 1983-84, no projections are yet available.

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation



Social Sciences and Services

Service Industries Technologies (Other Food Preparation)

Trade/Vocational Programs
Public Trade Schools and Similar Institutions (7 months)

This field of study consists of such training programs as baking, bartending and dietary service administration. The prerequisites for admittance to these programs vary according to the type of program, the institution and the province. A 1984 survey indicated that, on average, graduates of the programs had a high-school diploma before enrolling. The course of study lasts generally seven months, depending on the particular program, and in 1983-1984, was offered in all provinces except Prince Edward Island, New Brunswick and Saskatchewan. The demographic profile of the graduates from this field shows they were slightly older than the average for this level and that women were relatively more numerous than men, accounting for approximately 60% of the graduates.

Graduate Trends and Projections

The number of successful completions in this program totalled almost 1,600 in 1983-1984, which was about 2% of all the completions reported in pre-employment and skill upgrading programs. If the relative popularity of this course and the capacity of relevant faculties to absorb new students hold over the 1987 to 1995 period, the average annual number of graduates should decline slightly, as a result of the declining size of the corresponding population age group.

Destination of Graduates

Graduates from this major field of study entered the labour force in a proportion comparable to the average for this level. However, they were not as successful as other graduates in finding employment.

Occupations

Most of the graduates who were employed two years after graduation were working in service occupations, which include chef and cook positions. Others were working in processing occupations or in various other occupations in numbers too small to be reported.

The Course in Retrospect

An average proportion of graduates thought their current job matched their course of study. They were, for the most part, satisfied with their job, although a significantly higher-than-average proportion believed they were over-qualified for it. Overall, graduates from this field of study were more likely than others to state they would repeat the same educational program if they had to make the decision again.

Service Industries Technologies (Other)

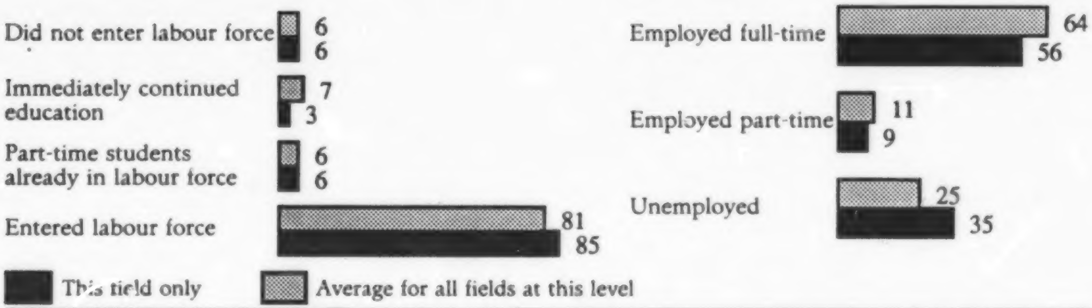
Trade/Vocational Programs
Public Trade Schools and Similar Institutions (7 months)

Graduate Trends

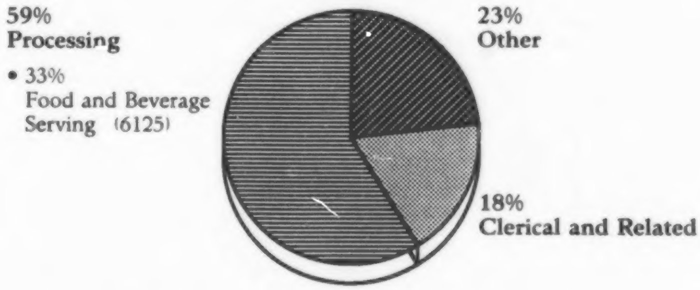
	1983-84*
Number of Graduates	1,278
% of Total Trade/Vocational Graduates	1.7

* This is the only period, since 1977, for which comprehensive and reliable data covering all provinces, territories and fields of study were available. Given this lack of historical data and the recent release of the data for 1983-84, no projections are yet available.

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation



Service Industries Technologies (Other)

Trade/Vocational Programs
Public Trade Schools and Similar Institutions (7 months)

This field of study consists of training programs related to food serving, hospitality and tourism services, building custodianship, funeral directing and embalming, and laundry and dry cleaning. The qualifications required to enter these programs generally vary according to the type of program, the institution and the province. A 1984 survey indicated that graduates from this field of study had a secondary school education prior to enrollment. The course generally takes seven months, depending on the program and the province, and in 1983-1984, was offered in all provinces and territories except Prince Edward Island, New Brunswick and the Northwest Territories. According to 1984 data, women were more numerous than men in this field, representing approximately 60% of the graduates.

Graduate Trends and Projections

In 1983-1984, there were almost 1,300 successful completions in this field of study, representing roughly 2% of all the completions registered in pre-employment and skill upgrading training programs. If the relative popularity of this course and the capacity of specific faculties to absorb new students hold over the 1987 to 1995 period, the average annual number of graduates should decline slightly, owing to the declining size of the corresponding population age group.

Destination of Graduates

A greater-than-average proportion of graduates entered the labour force upon completion of their program. However, they were not as successful as other graduates in their job search. A greater-than-average proportion could not find a job and fewer of them than other graduates found full-time work.

Occupations

Of the graduates who were working full-time two years after graduation, most were employed in processing occupations, especially in food and beverage serving. Another proportion had found jobs in clerical and related occupations. Other graduates were employed in a variety of occupations in numbers too small to be reported here.

The Course in Retrospect

A greater-than-average proportion of the graduates employed full-time thought their job was related to the training program. In spite of this, they were relatively less satisfied with their current job than other trade/vocational graduates. Similarly, a significantly higher-than-average proportion of graduates reported they had more education than required by their job and therefore considered themselves over-qualified for it. Despite the fact that graduates in this field were likely to remain unemployed, 65% of them compared, with 60% of all trade-level graduates, stated they would be ready to take the same educational program if they had to make this decision again.

Social Services

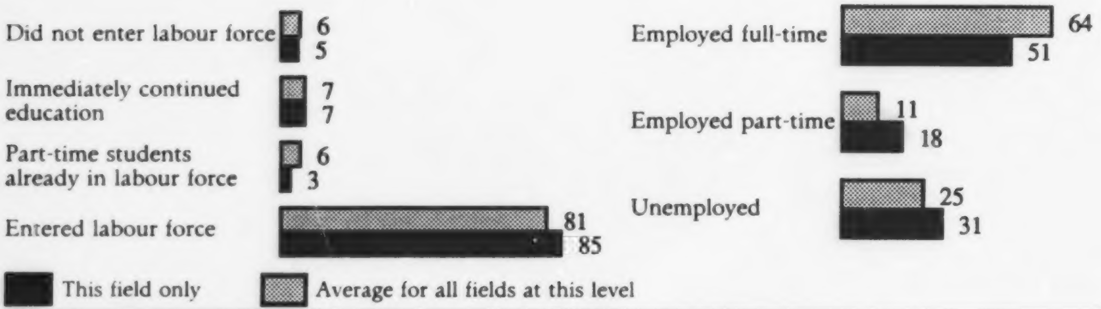
Trade/Vocational Programs
Public Trade Schools and Similar Institutions (7 months)

Graduate Trends

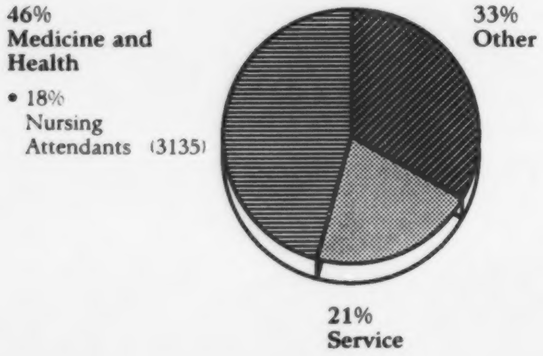
	1983-84*
Number of Graduates	994
% of Total Trade/Vocational Graduates	1.3

* This is the only period, since 1977, for which comprehensive and reliable data covering all provinces, territories and fields of study were available. Given this lack of historical data and the recent release of the data for 1983-84, no projections are yet available.

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation



Social Services

Trade/Vocational Programs
Public Trade Schools and Similar Institutions (7 months)

This major field of study includes training in child care services, care of the disabled and social services/welfare technologies. The prerequisites for admittance to these programs vary according to the type of program (pre-employment or skill upgrading), the institution and the province. A 1984 survey indicated that, on average, graduates of this field of study had completed secondary school prior to enrolling. The course of study lasts approximately seven months and in 1983-1984, was offered in all provinces except Newfoundland, Prince Edward Island, Nova Scotia and Saskatchewan. Graduates surveyed in 1984 were slightly older than average, and women accounted for more than 90% of them.

Graduate Trends and Projections

In 1983-1984, about 1,000 successful completions were reported in this training program, representing slightly more than 1% of all completions at this level. If the relative popularity of this course and the capacity of relevant faculties to absorb new students hold over the 1987 to 1995 period, the average annual number of graduates should decline slightly, as a result of the declining size of the corresponding population age group.

Destination of Graduates

A slightly greater-than-average proportion of the graduates in this field of study entered the labour force upon completion of their program, but they were not as successful as other graduates in their job search. A greater-than-average proportion could not find a job and were less likely to find full-time work than graduates from other fields.

Occupations

Of the graduates who were employed full-time two years after graduation, close to half were working as nursing attendants in the field of medicine and health care, while others had entered service occupations and various other jobs.

The Course in Retrospect

In comparison with graduates from other fields at this level, graduates in Social Services who found full-time employment were much more likely to have a job related to their course of study, to be satisfied with their job and to feel adequately qualified qualified for it. In spite of the relatively high unemployment among these graduates, a higher-than-average proportion stated they would be ready to take the same educational program if they had to make that decision again.

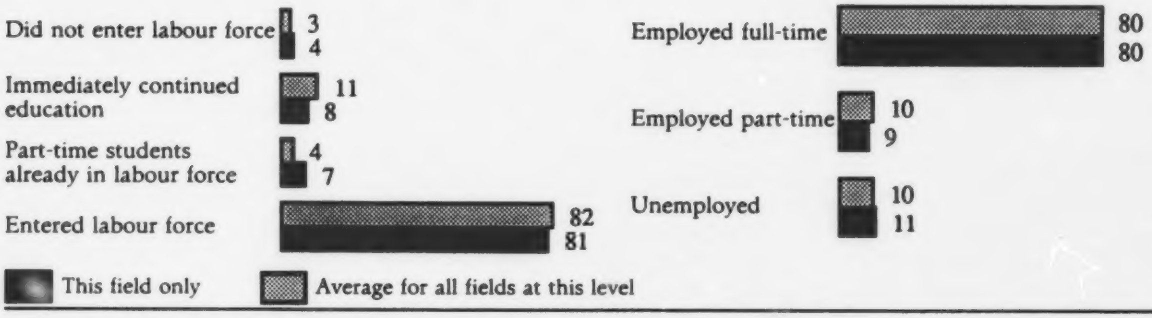
Social Services

Career Program
Community College (2 years)

Graduate Trends and Projections

	1977	1981	1985	1986	1995
Number of Graduates	1,455	1,628	1,970	2,000	1,880
% of Total Community College Graduates	3.9	3.5	3.4	3.4	3.4

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation

36%
Social Sciences and Related Fields

- 12%
  Social Workers (2331)
- 9%
  Welfare and Community Services Workers (2333)
- 9%
  Others in Social Sciences (2399)

20%
Teaching

- 8%
  Teachers of Exceptional Students (2795)
- 8%
  Elementary and Secondary School Teaching (273)

15%
Services

- 9%
  Child Care Occupations (6147)

29%
Other

Social Services

Career Program
Community College (2 years)

This field of study includes programs in such areas as child care, youth services, gerontology, care of the disabled, domestic science and related studies, and community planning. The prerequisites for entrance into the field vary by institution, but in general, candidates must pass an interview, have a relevant letter of recommendation, take a diagnostic English (French) test, have some related work experience and have completed advanced high-school courses in English (French) and mathematics. While not compulsory, courses in history, politics, geography, psychology and sociology are recommended. Social Services courses are offered in all provinces except New Brunswick and generally take two years, depending on the program. At some colleges, it is possible to graduate through involvement in a CO-OP program. According to 1984 data, roughly 25% of Social Service graduates obtained their certificate or diploma in this manner, compared with 15% for all college fields of study. The majority of graduates were women and were concentrated in Ontario.

Graduate Trends and Projections

Enrollments, and therefore graduations, depend on the capacity of the specific faculty to absorb new students and on the demand for entrance. Both these factors are influenced, in part, by the current and anticipated labour market situation. Since 1981, the annual number of graduates has averaged 1,800. The popularity of this course, as reflected by its share of all community college graduates, declined slightly between 1977 and 1986. If the course's current popularity and faculty capacities hold over the 1987 to 1995 period, 1,900 students should graduate from this course per year.

Destination of Graduates

Graduates from the Social Services program experienced a labour market outcome similar to the average for all college fields of study. The only noticeable differences were that a slightly-greater-than-average proportion had been attending school and working at the same time, and a slightly lower-than-average proportion continued their education following graduation.

Occupations

The majority of Social Services graduates who were working full-time two years after graduation were employed as social workers, welfare and community services workers, child care workers and teachers of exceptional students in the non-institutional social services (daycare, nursery schools), institutional health and social services and hospitals. The remainder were in other occupations, particularly in elementary/secondary school teaching. Graduates of this course who seek employment in the social welfare field face competition from education and counselling graduates at the college level and from sociology and social work university graduates.

The Course in Retrospect

Although a slightly lower-than-average proportion of graduates thought that their present job matched the field of study, a significantly greater-than-average proportion were satisfied with their job. In keeping with this higher-than-average job satisfaction is the fact that a significantly lower-than-average proportion of graduates thought they were over-qualified for their job. An average proportion stated they would select the same course if they had to choose again.

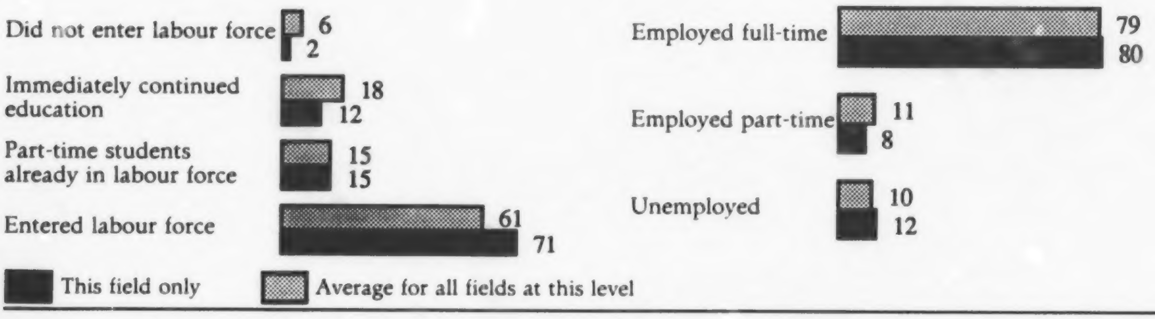
Social Work and Social Welfare

Undergraduate
University (3 years)

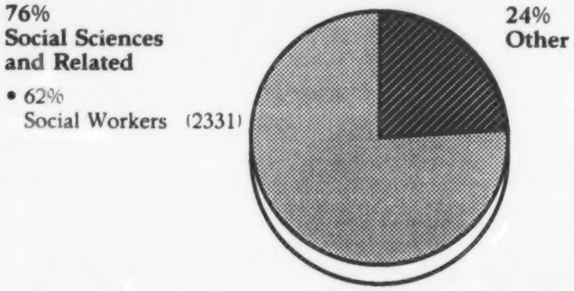
Graduate Trends and Projections

	1971	1981	1985	1986	1995
Number of Graduates	324	1,503	1,729	1,810	1,740
% of Total Undergraduate Degrees	0.4	1.5	1.5	1.5	1.5

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation



Social Work and Social Welfare

Undergraduate
University (3 years)

Admission to undergraduate programs in social work and social welfare usually requires a high-school diploma with emphasis on mathematics. Some institutions also require applicants to pass an interview or complete a questionnaire. Since enrollment in this field of study is often limited, high standing in secondary school courses is an asset. Mature students who have related work experience but who lack high-school graduation may be admitted. All provinces except Prince Edward Island offer Social Work or Social Welfare programs, which last an average of three years. According to 1984 data, the proportion of students who were enrolled in a CO-OP program (where they spend part of the year in school and part in the labour force) was higher than in other major fields of study. The representation of women is higher in this program of study than in other fields; in 1985, women accounted for about 80% of the graduates.

Graduate Trends and Projections

This program of study became increasingly popular during the 1970s. Between 1971 and 1981, the annual number of graduates increased fivefold. On average, during the first half of the 1980s, 1,600 students graduated in this field each year, representing 1.5% of all the undergraduate qualifications awarded. If the relative popularity of this course and the capacity of relevant faculties to absorb new students hold over the 1987 to 1995 period, 1,800 students per year should graduate from this course.

Destination of Graduates

According to a 1984 survey, 1982 graduates from this field of study were less likely to pursue their formal education than other undergraduates. A large number decided instead to enter the labour force. Their success in finding a job was average, as their unemployment rate was only slightly greater than in other fields.

Occupations

Two years after graduation, the majority of graduates from this course who were employed full-time were working as social workers, while others had found work in other occupations in the social sciences. For these kinds of jobs, college and university graduates in related fields of study, such as psychology, sociology and social services, as well as master's graduates in Social Work and Social Welfare compete with the graduates from this course of study.

The Course in Retrospect

Social Work and Social Welfare graduates faced rather favourable labour market conditions. A higher-than-average proportion thought their job was related to the course of study. Similarly, they reported a higher level of satisfaction with their job than other graduates, although they were more likely to consider themselves over-qualified.

Social Work and Social Welfare

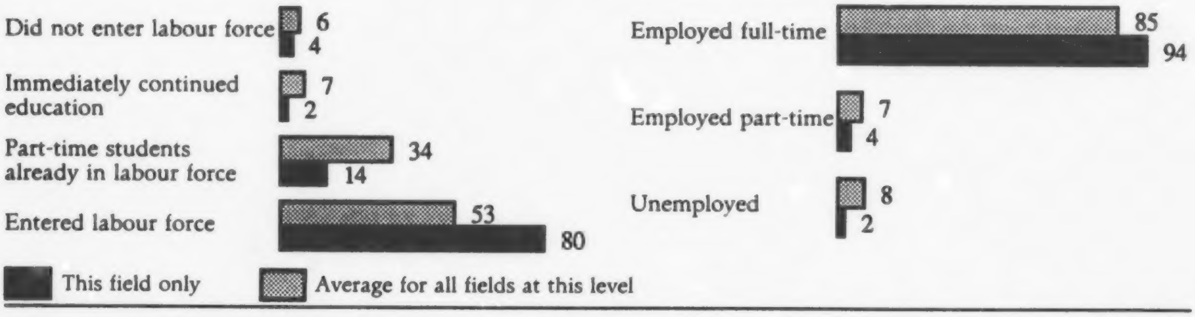
Master's
University (2 years)

Social Sciences and Services

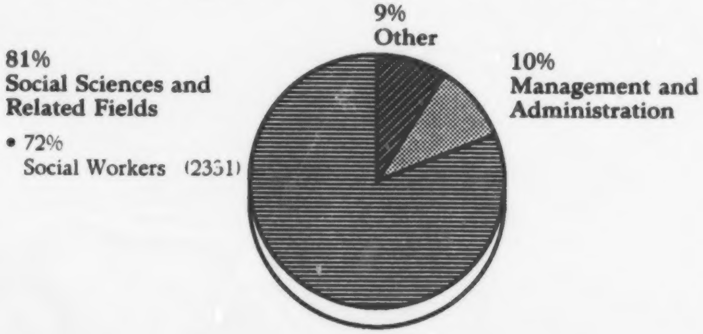
Graduate Trends and Projections

	1971	1981	1985	1986	1995
Number of Graduates	526	391	528	520	470
% of Total Master's Graduates	5.0	2.7	3.2	3.2	3.2

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation



Social Work and Social Welfare

Master's
University (2 years)

The prerequisites for entrance into this field of study vary by institution, but in general, candidates must have an honours undergraduate degree, or the equivalent, in this or a closely related field of study (for example, sociology) from a recognized university. (Holders of graduate diplomas and certificates are included with master's graduates.) The diploma or certificate programs are generally shorter than the master's program and may be taken following either an undergraduate or a master's degree. All the 1985 graduates in this course received degrees (Master of Social Work — MSW). The master's course is offered in all provinces except Prince Edward Island and New Brunswick and usually takes two years, depending on the institution. At some universities, students may graduate through involvement in a CO-OP education program. According to 1984 data, roughly 15% of the graduates in this field of study received their qualification in this manner. The majority of graduates were women (75%) and were concentrated in Ontario (60%).

Graduate Trends and Projections

Enrollments, and therefore graduations, depend on the capacity of the specific faculty to absorb new students and on the demand for entrance. Both these factors are influenced, in part, by the current and anticipated labour market situation. Since 1981, the annual number of graduates has averaged 450. The popularity of this course, as indicated by its share of all master's graduates, declined dramatically between 1971 and 1981, but has since begun to increase. If the course's current popularity and faculty capacities hold over the 1987 to 1995 period, about 500 students per year should graduate from this field of study.

Destination of Graduates

Upon graduation, a greater-than-average proportion of graduates became first-time labour force entrants, a statistic largely resulting from the lower number of graduates who continued their education or who were already in the labour force and had been attending school part-time. The success of those who looked for employment was significantly better than for other master's graduates, as indicated by their low unemployment rate (2%) and the high proportion of graduates who were able to find full-time jobs.

Occupations

Most Social Work and Social Welfare graduates who were working full-time two years after graduation were employed as social workers in the non-institutional or hospital sectors of the economy. The remainder were in various other occupations such as in management and administration. Graduates of this course who seek employment as social workers face competition primarily from undergraduates with degrees in Social Work and Social Welfare, psychology or sociology and from community college graduates with diplomas or certificates in the Social Services or education and counselling fields.

The Course in Retrospect

A 1984 survey indicated that not only was the transition from school to work significantly more successful for 1982 graduates in this field of study than for other master's graduates, but also a dramatically lower-than-average proportion of them (40%) thought they possessed more qualifications than their current job required. The survey further indicated that almost 90% of the graduates were satisfied with their current job. As a result of their very successful labour market transition and high levels of job satisfaction, approximately 85% of the graduates indicated they would follow the same educational route if they had to make this choice again.

Sociology

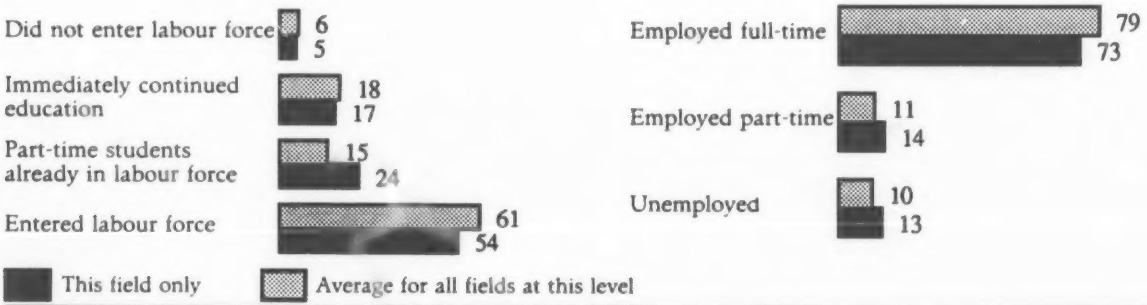
Undergraduate
University (3 years)

Social Sciences and Services

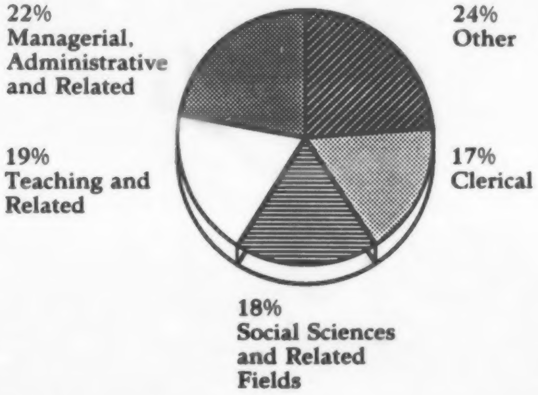
Graduate Trends and Projections

	1971	1981	1985	1986	1995
Number of Graduates	2,173	3,007	3,130	3,280	3,140
% of Total Undergraduate Degrees	3.0	3.0	2.8	2.8	2.8

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation



Social Sciences and Services

Sociology

Undergraduate
University (3 years)

This course of study comprises undergraduate programs in sociological studies such as social theory, sociology of industry and work, social structure and criminology. The general requirement for admittance is a high-school diploma with emphasis on humanities and mathematics courses (Quebec students applying to a Quebec university must have completed a Diploma of Collegial Studies). The programs are offered in all provinces and take an average of three years. Some institutions offer the possibility to receive the qualification through involvement in a program whereby the student spends part of the year in school and part in the labour force (CO-OP program). The province of Ontario accounted for half of all enrollments in this course in 1985. Most Sociology students are women: in 1985, they represented 70% of the graduates.

Graduate Trends and Projections

Between 1971 and 1985, the number of undergraduate degrees, diplomas and certificates awarded in Sociology increased by about 45%. Since 1981, there has been an annual average of 3,160 graduates from this program. Although the total number of undergraduate qualifications has also increased sice then, the relative popularity of the field at this level has remained the same: roughly 3% of all undergraduate degrees, diplomas and certificates have been qualifications awarded in Sociology. If the course's current popularity and the capacity of relevant faculties to absorb new students hold over the 1987 to 1995 period, about 3,300 students should graduate in Sociology per year.

Destination of Graduates

This field of study is characterized by the significantly higher-than-average proportion of graduates who were enrolled part-time during the final semester of their program. If these graduates are considered as already part of the labour force, then close to 80% of the graduates in Sociology were in the labour force upon completion of their program. Those who looked for jobs were slightly less successful than other graduates, since their unemployment rate was higher, and fewer of them found full-time work.

Occupations

Contrary to expectations, most Sociology graduates did not enter occupations in the Social Sciences, but rather those related to management, administration, teaching and clerical work. Positions in these occupational areas are not necessarily filled by Sociology graduates: college and university graduates in business administration, the social sciences and teaching also compete for these jobs.

The Course in Retrospect

A 1984 survey indicated that 1982 students graduating in Sociology faced a less favourable labour market situation than other graduates. Employment indicators were more pessimistic than the average for this level: they revealed a poorer link between job and program of study, a higher level of dissatisfaction with the current job and a higher graduate tendency to be over-qualified for their jobs. In keeping with this, only about 55% of the graduates, compared with 70% for undergraduate courses overall, stated they would select the same educational program if they had to make that decision again.

Sociology

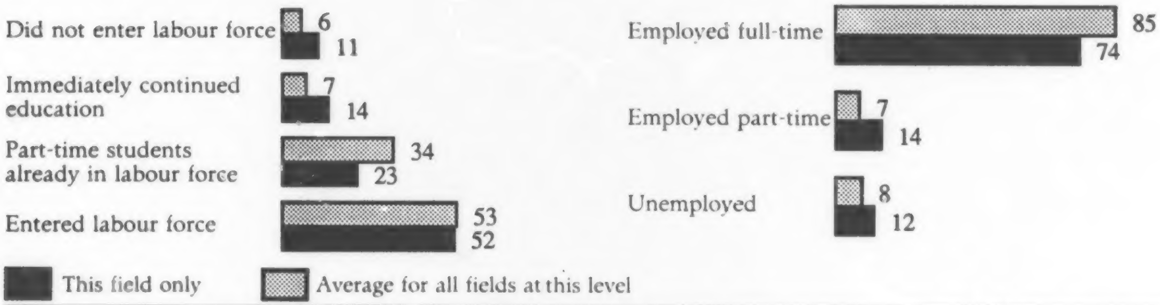
Master's
University (2 years)

Social Sciences and Services

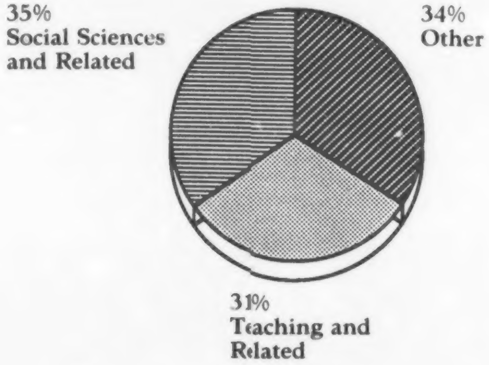
Graduate Trends and Projections

	1971	1981	1985	1986	1995
Number of Graduates	210	215	228	225	205
% of Total Master's Graduates	2.0	1.5	1.4	1.4	1.4

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation



Sociology

Master's
University (2 years)

At this level, Sociology includes such areas of study as folklore, sociology of the family, sociology of industry and work, sociology of religion and social theory and structure. The entrance prerequisites generally include an honours undergraduate degree, or the equivalent, in this or a closely related field of study from a recognized university. Only about 5% of the 1985 graduates in this course of study obtained diplomas or certificates rather than degrees. The master's course is offered in all provinces except Prince Edward Island and usually takes two years, depending on the institution. According to 1984 data, the majority of graduates were women (60%) and were concentrated in Ontario (40%).

Graduate Trends and Projections

Enrollments, and therefore graduations, depend on the capacity of the specific faculty to absorb new students and on the demand for entrance. Both these factors are influenced, in part, by the current and anticipated labour market situation. Since 1981, the annual number of graduates has averaged 225. The popularity of this course, as indicated by its share of all master's graduates, declined between 1971 and 1981, but has since held fairly constant. If the current popularity of this course and faculty capacities hold over the 1987 to 1995 period, 200 students per year should graduate in Sociology at this level. The number of new graduates competing for related employment is therefore expected to be lower over the projection period than it was between 1981 and 1985.

Destination of Graduates

Upon graduation, an average proportion of graduates became first-time labour force entrants. A significantly greater-than-average proportion continued their education, while a dramatically lower-than-average proportion were already in the labour force and had been attending school part-time. The success of those who looked for employment was lower than for other master's graduates, as revealed by the 12% unemployment rate, which might have been higher had not double the average proportion of these graduates (14%) found part-time employment.

Occupations

Most Sociology graduates who were working full-time two years after graduation were employed in the social sciences (a grouping including sociologists and social workers) and in teaching occupations. The remainder had jobs in various other occupations, but were not concentrated in any one. Graduates of this course who seek employment as sociologists face competition primarily from Sociology graduates at the undergraduate and doctorate levels.

The Course in Retrospect

A 1984 survey indicated that not only was the transition from school to work less successful for 1982 graduates in Sociology than for other master's graduates, but their attitude was also less positive concerning this transition. Significantly more Sociology graduates than other master's graduates thought that their current job did not match the field of study, more were dissatisfied with their job and about 65% of them believed they were over-qualified for their job. In keeping with their relatively poor labour market transition, annual salaries that were about $6,000 lower than the average for the master's level, and a lower level of job satisfaction, only about 65% of the graduates compared with 80% of all master's graduates, indicated they would follow the same educational route if they had to make this choice again.

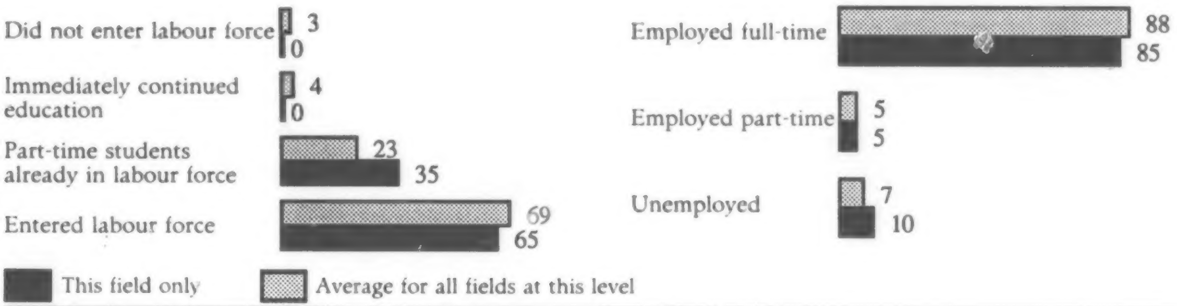
Sociology

Doctorate
University (4 years)

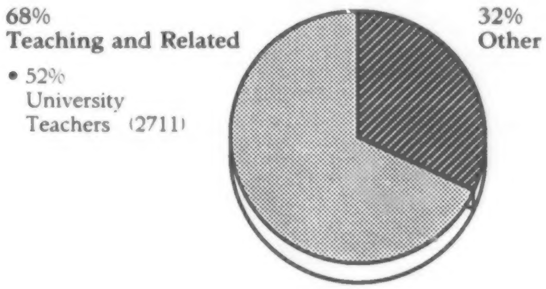
Graduate Trends and Projections

	1971	1981	1985	1986	1995
Number of Graduates	12	41	48	50	55
% of Total Doctorate Graduates	0.7	2.3	2.4	2.4	2.4

Destination of Graduates (%)



Distribution of Full-Time Employed Graduates by Occupation



Social Sciences and Services

Sociology

Doctorate
University (4 years)

Programs in areas such as social theory and social structure, sociology of the family and criminology are included in this field of study. Candidates for these programs usually must have a master's degree or the equivalent. This doctoral program takes about four years and is offered in all provinces except Newfoundland, Prince Edward Island, Nova Scotia and Saskatchewan. According to 1984 data, the proportion of graduates who were enrolled part-time during their last semester before graduation, as well as the average age of graduates in this course of study, were higher than in other fields of study at this level. The representation of women was higher than the average, although most graduates were men (55%).

Graduate Trends and Projections

The number of graduates increased substantially from 12 in 1971 to 48 in 1985, and the relative popularity of this field rose accordingly, as indicated by the increase from 0.7% to 2.4% of the percentage of Sociology graduates as a proportion of all PhD graduates. If the current popularity of this course and the capacity of relevant faculties to absorb new students hold over the 1987 to 1995 period, 50 students per year should graduate from this field of study.

Destination of Graduates

A 1984 survey indicated that no 1982 graduates from this PhD course of study pursued their education, but rather entered the labour force. They were slightly less successful in securing full-time jobs than doctorate graduates from other fields, and more likely than others at this level to be unemployed.

Occupations

As is the case for most PhD graduates, the majority of Sociology graduates who found employment were working in occupations related to teaching, mostly at the university level. Other graduates found work in a variety of occupations but were not concentrated in any one.

The Course in Retrospect

While a significantly lower-than-average proportion of graduates thought their current job was related to the program of study, a higher-than-average number were satisfied with their job and, relative to other fields, were less likely to consider themselves over-qualified for it. In addition a greater-than-average proportion of graduates reported they would make the same educational choice if they had to decide again.

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Employment and Immigration Canada | Emploi et Immigration Canada

job futures

AN OCCUPATIONAL OUTLOOK TO 1995

1988-1989 EDITION

Volume Two: Occupational Outlooks

Canadian Occupational
Projection System
COPS

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Minister of Employment
and Immigration

CANADA

Ministre de l'Emploi
et de l'Immigration

Message from the Minister of Employment and Immigration

It is my pleasure to present you with the second edition of the counselling handbook, Job Futures. This manual offers helpful information on current and future labour market conditions for a large number of occupations, together with data on the labour market experiences of past graduates.

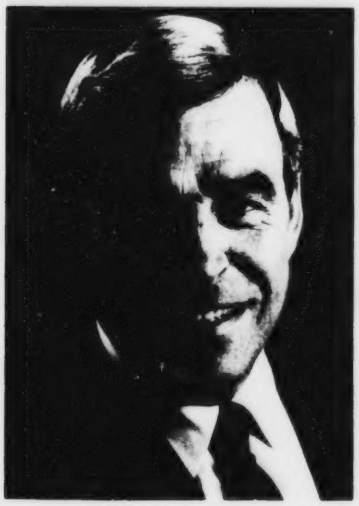
Job Futures was created by Employment and Immigration's Canadian Occupational Projection System (COPS), to provide counsellors with occupational information that they can use to provide better advice to Canadians on career choices, career changes, and future prospects.

This second edition of Job Futures reflects the growing scope of occupational labour market analysis undertaken by COPS to date and contains a large number of important additions to the handbook's first edition.

We are committed to helping Canadians, young and old, choose suitable and fulfilling careers. As well, we recognize that employers need well trained and motivated employees. I believe that the information in Job Futures addresses many of these concerns.

Many individual Canadians and associations have helped make this handbook possible. They reviewed the content and provided valuable comments in their area of expertise, and many of them are listed as sources of further information. To all of them, I express my thanks.

I am confident that you will find this new edition of Job Futures a valuable tool in making the occupational choices you face.



Benoît Bouchard
Minister of Employment and Immigration

Minister of State
Youth

CANADA

Ministre d'État
Jeunesse

Message from the Minister of State for Youth

What career should you choose? Each generation of young people has had to wrestle with this crucial decision. How do you translate your talents into a rewarding and promising career? How do you find the right job that challenges you and meshes with your aspirations?

The journey from the educational system to the job market has never been easy. It still isn't and probably never will be.

Career counsellors have had special problems of their own. Relevant labour market research has been hard to find, often making it difficult for them to advise young people and to help with critical decisions.

This publication can assist the counsellor by making available relevant labour market information that will help individuals make worthwhile career choices.

The federal government through the Ministry of State for Youth and the Department of Employment and Immigration Canada has been analyzing the recent job market and trends. Valuable information from this analysis has been incorporated into this publication.

I have been told by students and vocational guidance counsellors that the first edition of Job Futures was a very valuable source of information to assist in career choices. I have a commitment to helping young Canadians choose suitable and fulfilling careers, and this second edition of Job Futures maintains that commitment.

Whether you're a counsellor or a student, or someone interested in changing careers, Job Futures will give you an understanding of the choices in the job market today and where these jobs are probably going to be by 1995.

Jean J. Charest
Minister of State for Youth

Preface

Job Futures is a product of the Canadian Occupational Projection System (COPS), a labour supply and demand information and data bank designed by Employment and Immigration Canada.

The occupational information included in these publications includes projections based on information collected and analysed through the Canadian Occupational Projection System (COPS). Projections should be interpreted with caution since no one can say with certainty what the future has in store. These projections are not predictions of what will necessarily happen. Rather, they represent one possible path for occupational requirements.

Many trade associations, professional societies, unions and industrial organizations are able to provide valuable career information for counsellors and students. Some of these organizations are listed at the bottom of the statistical analysis for each occupational statement in Volume Two: *Occupational Outlooks*.

However, the listing of an organization does not constitute in any way an endorsement or recommendation — either of the organization or of the information it may supply.

This edition of *Job Futures* is the second in what is planned as a regular series of publications on career outlooks in Canada. It embodies the extent of COPS research to date. Those familiar with the first edition will find the information in this second edition substantially expanded and improved. To incorporate the additional data and new statistical presentations, this edition has been published in two separate volumes.

Acknowledgements

Employment and Immigration Canada would like to thank Dr. Paul Anisef, Associate Professor, Department of Sociology at York University and Etta Baichman for their research and contribution to the job descriptions, career opportunities and earnings information used in *Job Futures*. Thanks are also extended to the University of Toronto Guidance Centre whose Occupational Information series provided valuable corroborative evidence on the observations presented in *Job Futures*, Volume Two.

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Introduction

Volume Two: Occupational Outlooks

Choosing a career or changing your line of work is a challenge, especially in these uncertain economic times. There are questions which need answers. What occupations can I enter with my educational background? What qualifications do I need to enter a specific occupation? What is the job market like? What jobs are sensitive to technological change? Where do the best opportunities for me lie?

Job Futures helps to answer these questions by providing valuable information on the educational system and on future occupational labour markets. *Job Futures* is designed for students and educational counsellors as well as for persons interested in changing careers or re-entering the labour market.

In addition to statistical information, *Job Futures* contains descriptive information on various features of occupational labour markets. Representatives of industry, labour, unions, provincial governments and education offered their special perspectives. The result is a comprehensive view of present and future labour market conditions.

Volume One of *Job Futures* concentrates on the link between the educational system and the labour market through the analysis of the labour market outcomes for graduates from some 100 fields of study at the post-secondary level. Volume Two provides information on the current and future labour market situations for specific occupations.

How Volume Two Works

Volume Two answers such questions as:

- What exactly does someone in a given occupation usually do?
- What are the normal working conditions for this occupation?
- What sort of educational background do I need to enter this occupation?
- Is this occupation opening up to women?
- What are my chances of getting full-time or part-time work in this occupation?
- Is employment stable, or can I expect periods of inactivity in this occupation?
- What are the career opportunities for someone in this occupation?
- Are there many job openings expected in this occupation?
- How much do people in this occupation normally earn?

Much of the information in Volume Two can be used by young people still in school. It can help them choose a career and the course of study required to achieve their career aspirations. Similarly, Volume Two information can help individuals contemplating a career change or a continuation of their education through part-time studies. For these people, *Job Futures* can help target occupational goals and help identify the additional education they may need to reach their goal.

Organization of Volume Two

Volume Two is organized according to occupation as described in the Standard Occupational Classification. The code numbers (such as 1132, 1171 etc.) and occupation titles are those used by Statistics Canada in the coding of the Census and the Labour Force Survey.

The first two digits of the code number indicate the general occupational field (for example, 11 corresponds to managerial occupations); the second two numbers indicate the specific occupation. (Thus, 1132 indicates managerial occupations generally and managers in social sciences specifically.) Altogether, *Job Futures* covers nearly 200 such occupational groups.

Each occupational area has two pages of information devoted to it. One page contains several sets of statistical data for the particular occupational area while the second page contains descriptive and analytical text for the same occupational group.

The tables are designed for quick and easy reference which allows the reader a ready overview of the labour market situation of the particular occupational group. In it you will find projections of total employment in the occupation to 1995, the projected number of new job openings and openings to replace departing people in the occupation. The age and sex composition, the main industries and the provinces of employment are also included. Finally, an estimate of the number of entrants into the occupation from the post-secondary education system is included.

The narrative contains brief job function descriptions, working conditions, educational requirements, age and sex trends, career ladder information, labour market assessments, effects of technological change, notes on seasonality of employment, notes on sensitivity to changes in the business cycle and, for most of the occupations, information on earnings.

The analysis and reported figures apply to the occupational title that normally represents an entire occupational group. A statement that applies to a group may not apply to each individual occupation within the group. For example, if a statement refers to art restorers, it does not necessarily apply to painting restorers, even though they are both a part of the Technicians in Library, Museum and Archival Sciences group.

Not all occupations in the Standard Occupational Classification are listed because not all have easily recognized supply channels. For some occupations, training is industry specific with low-skill requirements, and promotion is from within. For others, skill requirements are such that high-school graduates are the main source of new supply.

Estimates of labour force withdrawals refer only to voluntary departures from the labour force and departures due to death. Statistics on inter-occupational transfers are not included because of lack of data.

An index, organized both numerically by code number and alphabetically by occupation, is included.

Explanation of Terms and Headings Used in Volume Two

Employment Trends and Projections — estimates of the number of people in the occupational group required in 1995 to make the goods and services projected by COPS to be produced up to 1995. Estimates of the number of people in the occupation in 1981 and 1986 are also included.

This Occupation — the occupational group(s) listed at the top of the page.

All Occupations — all occupations in the labour market including occupations that are not listed in *Job Futures*. It allows you to compare the specific occupation to the average for all occupations.

Net New Job Openings – the number of job openings that are expected as a result of growth in the economy.

Replacement Openings – openings that are expected as a result of withdrawals from the labour force because of death, retirement, returns to the household and returns to the educational system. This does not include openings that arise when people move from one occupational group into another.

Total Job Openings – net new job openings plus replacement openings.

Sex Composition – taken from the 1971 and the 1981 censuses. A comparison to all occupations is included.

Age Composition – also taken from the 1971 and 1981 censuses. A comparison to all occupations is included.

Full-time, Part-time – for 1971, full-time means a usual work week of 29 or more hours. For 1981, workers identified themselves as being full-time or part-time workers.

Main Industries of Employment – the first line of this table lists the three largest major sectors of employment for the occupation. The next three lines list the main individual industries (based on the COPS 62 industry structure) within the major sectors, to a maximum of three, for the occupation. The percentages are the proportion of employment found in the sector or industry.

Geographic Distribution of Employment – taken from the 1981 Census. It represents the employment distribution of the occupation and not necessarily the distribution of anticipated job openings.

Potential Supply from the Post-Secondary Education System – an estimate of the average number of graduates of various streams of the post-secondary education system destined for full-time employment in the occupation during the 1981 to 1986 period. This information is based on the 1984 National Graduates Survey.

Job Environment – includes several individual occupations found in the group, general job duties and responsibilities of the occupational group. These job descriptions are not definitive; rather, they are intended to provide you with a flavour for the type of work performed by the group and an idea of their job situation.

Educational Background and Skills – the usual educational attainment levels and skills achieved by the people working in the occupational group. There are exceptions to virtually every occupation, so you are cautioned again that this information is to give you a general notion of the education usually required of people in the group.

Nature of Supply – contains information on the types of people that normally enter the occupation. For example, workers entering an occupation may come directly from the educational system, work their way up from another occupation, enter from another country, from the military or from the household sector. Desirable characteristics and possible career paths are also identified in this section. Finally, representation of women, age structure and movements into and out of the occupation may be described.

Market Conditions and Job Prospects – contains information on the job market conditions for the occupation and the factors that affect them. The expected rate of employment growth is compared to that for all occupations. (Overall growth is expected to average 1.3 per cent per year to 1995. Growth expectations ranging from 1.1 per cent to 1.5 per cent are considered about average.)

Since people are hired not only to fill new jobs, but also to replace workers leaving existing jobs, the anticipated number of replacement openings is noted. These are estimates of openings resulting from withdrawals because of death, retirement, returns to education and returns to the household. They do not include estimates of the movement from the occupation to other occupations.

Occupations which may be among the quickest to decline during a recession but may be among the first to rebound during a recovery are said to be "sensitive to business conditions." This is noted where applicable. Sensitivity to business conditions was gauged by examining the employment differences among the various COPS scenarios and by an examination of estimated employment trends through the 1981-1982 economic recession and subsequent recovery period.

A description of the technological, demographic, organizational or other factors that affect the group may be included. Occupational employment projections are based on the unchanging occupational composition of industries. In reality, many occupations increase or decrease their representation within an industry over time for various reasons. Pertinent commentary on some of these reasons and the extent of their impact is supplied where possible.

Earnings — wage or salary information is provided, where available. Other forms of compensation are not included. This information comes from a wide variety of sources which are usually identified in the text. Additionally, earnings information on 1982 graduates taken from the 1984 National Graduates Survey is reported where applicable. These earnings pertain only to those 1982 graduates of any field of study who had full-time jobs in 1984 in the occupation in question.

What Job Futures Can't Do

Job Futures is a companion to other publications and should not be treated as stand-alone career information. It provides a reasonable view of expected labour conditions in various occupational areas.

Job Futures does not provide complete information on training qualifications, full job descriptions or working conditions. To find out more about these, consult your nearest Canada Employment Centre, or refer to the *Canadian Classification and Dictionary of Occupations* (CCDO); *Occupational Qualifications Requirements*, (Information Canada); and the *Directory of Associations in Canada*, 5th ed. (Brian Land, editor).

An Employment and Immigration publication, *Careers Canada*, provides extensive descriptions of other aspects of occupations (i.e., qualifications and working conditions, etc.).

As well, Employment and Immigration Canada offers CHOICES, an interactive computer system that allows students to ask pertinent questions about career choices. For information on *Careers Canada* and CHOICES, contact a Canada Employment Centre or the Employment Support Services Branch, Employment and Immigration Canada, National Headquarters, Ottawa-Hull.

Occupational Outlooks

Inspectors and Regulatory Officers, Government

1116

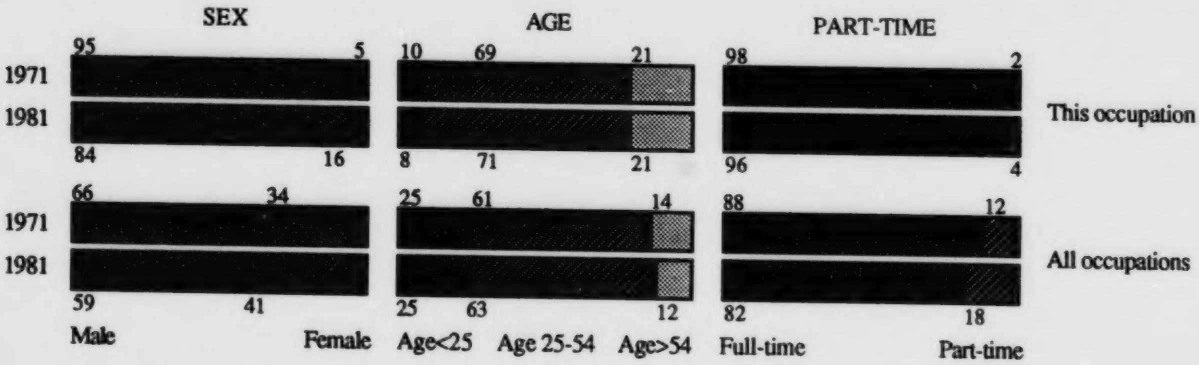
Employment Trends and Projections

	Employment 1981	Employment 1986	Employment 1995	Average Annual Growth Rate (%) 1971-81	Average Annual Growth Rate (%) 1981-86	Average Annual Growth Rate (%) 1987-95
This Occupation	25,900	26,800	29,100	4.3	0.6	1.0
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation 1987-95	This Occupation % of 1987 Jobs	All Occupations % of 1987 Jobs
Net New Job Openings	2,200	8.1	11.1
Replacement Openings	12,600	46.7	49.2
Total Job Openings	14,800	54.7	60.3

CENSUS – 1971 and 1981 (%)



1981 CENSUS – Main Industries of Employment (%)

Public Administration (99)
- Federal Admin (49)
- Provincial Admin (34)
- Municipal+Oth Gov't (16)

Geographic Distribution of Employment – 1981 (%)

Newfoundland	1.9	Ontario	37.5
Prince Edward Island	0.8	Manitoba	4.8
Nova Scotia	4.0	Saskatchewan	3.5
New Brunswick	3.4	Alberta	9.7
Quebec	21.1	British Columbia	12.8

Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
– College (1981-86)	371	66.8
– University (1981-86)	184	33.2
Trade Vocational Schools (1983/84 only)	0	0.0

Inspectors and Regulatory Officers, Government 1116

Job Environment

This group includes officers at the local, provincial and federal levels whose responsibilities include enforcing and advising on government regulations. In this classification there are a tremendous variety of occupations including boiler inspectors, building inspectors, censors, customs officers, food inspectors, health inspectors, immigration officers, inspecting engineers, patent examiners, restaurant inspectors, safety inspectors and weights and measures inspectors.

Public health inspectors, for example, act as field representatives for medical officers of health, aiding them in the enforcement of health regulations, statutes and by-laws. They are also responsible for case assessments and counselling on environmental health problems. Examples of areas in which public health inspectors provide information are insect and rodent control, food problems, housing conditions and institutional sanitation. Public health inspectors work a seven-hour day, or sometimes longer, in case of emergencies. About three-quarters of their time is spent in the field, with the remainder devoted to office work and public awareness.

Educational Background and Skills

Although specific educational training and qualifications are necessary for the various unique occupations, generally individuals wanting to work in this category should be secondary school graduates with some post-secondary education (for example, law and security or public health inspection courses at the community college level); should have related work experience; and should be willing to take on-the-job training ranging from two weeks (customs inspector) to 12 months (immigration officer) coupled with in-house classroom training, examinations and, in some instances, a certification process (public health inspector). For some occupations, such as engineering inspectors and patent examiners, extensive formal training culminating in a post-secondary degree or certificate is required, often in engineering disciplines. In all instances, government inspectors must be thoroughly versed in the regulations and technologies of the industry in which they conduct inspections. Canadian citizenship is required for most of these positions.

Nature of Supply

Although the category continues to be male dominated, more and more women are choosing these careers. Most individuals enter the occupation between the ages of 25 and 29 and leave between 60 and 64 years of age, implying an average career length of 35 years.

Market Conditions and Job Prospects

Based on the public administration sector, the employment outlook for this occupational group calls for below-average growth over the forecast period. This differs from the 1970s and early 1980s when employment grew at a faster-than-average pace. Many of the job openings over the next eight years will be the result of people leaving the occupation because of death or retirement since a considerable proportion (30%) of government inspectors were age 50 or more at the time of the 1981 census.

General economic conditions do not affect these occupations very much, but government austerity measures may slow down employment growth. Nevertheless, greater public concern for health and safety make it probable that employment in this classification will continue to grow, though at slower rates of expansion.

It is anticipated that over the projection period some 12,000 inspectors will be required to replace those leaving these occupations because of retirement, death, emigration and returns to the education system and households.

Almost one-half of all government inspectors work for the federal government, with the provincial and municipal governments accounting for the other half.

Earnings

Salaries vary from province to province and between municipal, provincial and federal agencies. According to the Canadian Institute of Public Health Inspectors, salary scales range from $25,000 to $33,000 for public health inspectors.

General Managers and Other Senior Officials

1130

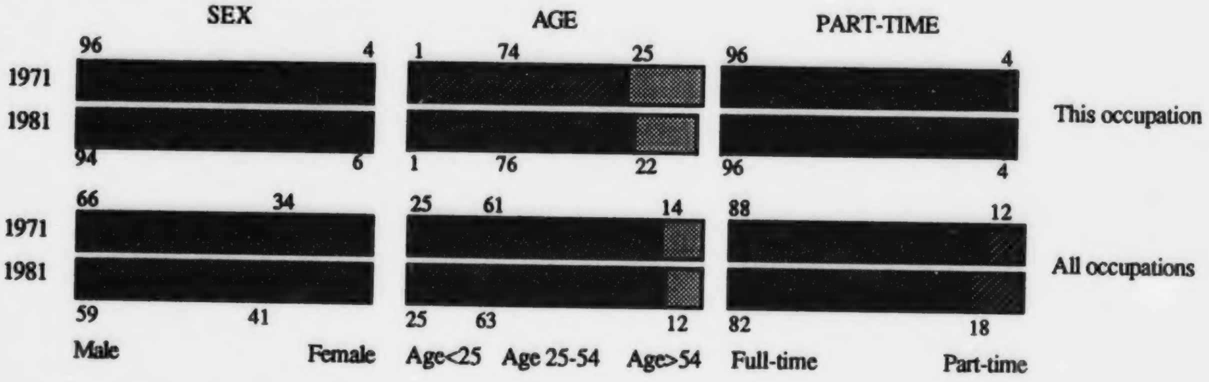
Employment Trends and Projections

	Employment			Average Annual Growth Rate (%)		
	1981	1986	1995	1971-81	1981-86	1987-95
This Occupation	86,400	90,900	101,900	1.8	1.0	1.3
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation 1987-95	This Occupation % of 1987 Jobs	All Occupations % of 1987 Jobs
Net New Job Openings	9,800	10.6	11.1
Replacement Openings	35,900	39.0	49.2
Total Job Openings	45,700	49.5	60.3

CENSUS – 1971 and 1981 (%)



1981 CENSUS – Main Industries of Employment (%)

Manufacturing (27)
- Metal Fabricating (3)
- Food+Beverages (3)
- Printing+Publishing (2)

Trade (22)
- Wholesale Trade (13)
- Retail Trade (9)

Services (19)
- Business Services (8)
- Misc Services (4)
- Oth Health Services (2)

Geographic Distribution of Employment – 1981 (%)

Newfoundland	0.8	Ontario	45.7
Prince Edward Island	0.2	Manitoba	2.1
Nova Scotia	1.8	Saskatchewan	1.2
New Brunswick	1.2	Alberta	7.0
Quebec	31.0	British Columbia	8.6

Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
– College (1981-86)	108	17.4
– University (1981-86)	448	72.3
Trade Vocational Schools (1983/84 only)	64	10.3

General Managers and Other Senior Officials

1130

Job Environment

Positions in this classification pertain to top or senior management, and include presidents, vice-presidents, chairpersons, directors, executive directors and general managers. Besides planning, organizing, motivating and directing other workers, senior managers make decisions regarding overall corporate strategy, company policy and structure, finance and expansion of the organization. They spend much of their time in scheduled or unscheduled meetings, assimilating and synthesizing information in order to make effective decisions. Governments, non-profit groups and other types of organizations rely on the effective leadership of these people.

Educational Background and Skills

Although an undergraduate degree has become the norm in this occupational group, in many instances a graduate degree is highly desirable. Fields studied by senior managers vary tremendously, ranging from business administration, economics and psychology to engineering.

Though their educational backgrounds vary, nearly all senior managers have prolonged experience in management and in their particular organization. Typically, senior managers work their way up the occupational ladder, gaining first-hand knowledge of the firm's operations. The length of this process is reflected in the high average age in this classification.

Nature of Supply

Most people in these occupations are men (94%), although more women have been choosing these careers in recent years. The majority of general managers work in Quebec (20%) and Ontario (44%). The average age (47) has remained fairly stable since 1971. Individuals tend to enter these occupations between the ages of 35 and 39 and leave between 55 and 59 years of age.

Market Conditions and Job Prospects

Current labour market conditions for general managers and other senior officials are better than for most occupations. Unemployment is low among experienced executives with a sound managerial background and an in-depth understanding of a given industry.

Employment growth in this category should keep pace with the overall employment increase in the labour market. Over the projection period, 10,000 new jobs are anticipated. Another 36,000 workers will be required over the same time frame to replace those leaving for reasons of retirement, higher education or death. The number of general managers expected to leave the occupation because of death or retirement is fairly high, reflecting the older age structure of these occupations than of the labour force at large. In spite of this, competition for executive posts is expected to intensify as the labour force ages and the number of qualified and experienced workers applying for these positions increases.

Changing technology may have a minor effect on the demand for this occupational group. The advent of computerized information processing, computer-aided manufacturing, robotics, statistical process control and other technologies has tended to reduce the size of the work force required by firms and hence, their layers of management.

Earnings

According to the 1984 National Graduate Survey, 1982 university graduates working in these occupations two years following graduation were paid $33,469 on average, while community college graduates received $27,100.

Management Occupations, Natural Sciences and Engineering 1131

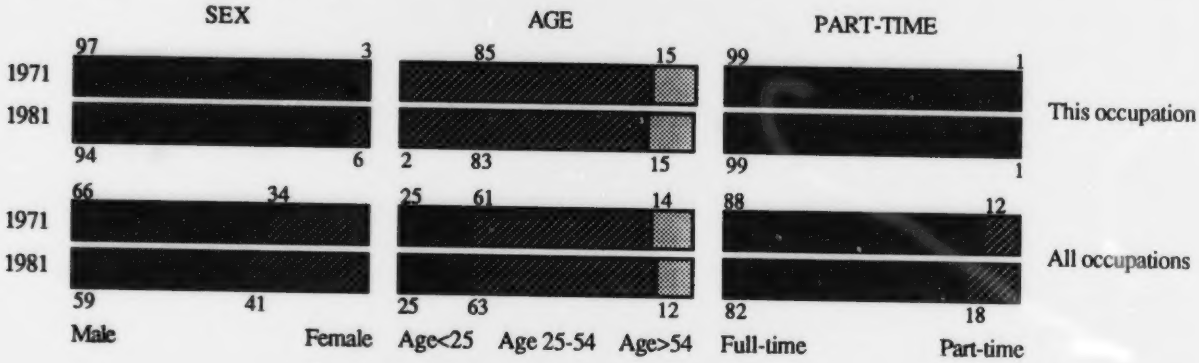
Employment Trends and Projections

	Employment 1981	1986	1995	Average Annual Growth Rate (%) 1971-81	1981-86	1987-95
This Occupation	12,000	12,500	14,100	17.2	0.7	1.3
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation 1987-95	% of 1987 Jobs	All Occupations % of 1987 Jobs
Net New Job Openings	1,300	10.6	11.1
Replacement Openings	3,400	26.6	49.2
Total Job Openings	4,700	37.2	60.3

CENSUS – 1971 and 1981 (%)



1981 CENSUS – Main Industries of Employment (%)

Services (31)
- Business Services (26)
- Education (2)

Manufacturing (26)
- Machinery (5)
- Electrical Products (4)
- Chemicals+Chem Prod (3)

Public Administration (14)
- Federal Admin (9)
- Provincial Admin (4)
- Municipal+Oth Gov't (1)

Geographic Distribution of Employment – 1981 (%)

Newfoundland	0.5	Ontario	54.3
Prince Edward Island		Manitoba	2.3
Nova Scotia	1.5	Saskatchewan	2.1
New Brunswick	0.9	Alberta	18.1
Quebec	11.9	British Columbia	8.1

Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
– College (1981-86)	50	21.2
– University (1981-86)	186	78.8
Trade Vocational Schools (1983/84 only)	0	0.0

Management Occupations, Natural Sciences and Engineering

1131

Job Environment

Included in this category are managerial and administrative positions in architecture, data processing and system analysis, engineering, the life sciences and physical sciences.

Both the Association of Professional Engineers of Ontario and the Ordre des ingénieurs du Québec classify full-time engineering managers (an example of a group in this category) from one to six or seven, according to their level of responsibility. At the first level, managers are responsible for directing subordinate engineers, modifying established guidelines when necessary, devising new approaches and analysing comparative situations. At the upper levels, engineering managers must possess a high degree of originality and skill, as they are responsible not only for short-term decisions, but also for long-range planning involving considerable human and financial investment. Between 50% and 60% of all engineering graduates advance to administrative and managerial work. The experience they gain working co-operatively with other specialists and in supervising work projects prepares them particularly well for management positions.

Educational Background and Skills

As with most managerial occupations, these are achieved only after several years of experience. Most individuals have a university degree, and in some cases, a post-graduate degree in either business, engineering or computer science, as well as more than five years' experience in some specialized area.

Nature of Supply

Although these occupations have long been dominated by men, more and more women have begun choosing careers that should eventually lead them into this area. Most natural science and engineering managers are located in Quebec and Ontario, with Alberta having the highest concentration relative to population (one manager per 1,000 people). The average age (42) has declined marginally since 1971, largely because there are fewer managers older than 54, and more who are under 25. The majority of managers in natural science, engineering and mathematics enter these occupations between the ages of 35 and 39 and begin to leave between the ages of 60 and 64, implying a less-than-average career span of 25 years.

Market Conditions and Job Prospects

Employment in managerial occupations in the natural sciences increased faster than the average for all occupations between 1971 and 1981. Although this pace has continued into the 1980s, it is expected to slow to about average. These scientists move into managerial occupations later in their careers. The relatively older occupational profile in this classification indicates that a number of workers are close to retirement. New managers will be needed to replace those who retire, die or leave for various reasons. Over the projection period, about 3,400 replacement workers will be required.

The unemployment rates for these occupations, although better than for all occupations, have held constant in the 4% to 5% range since 1983. Many engineering managers are employed in the business services and the public sectors. Employment in the services sector is more stable, and changes in the business cycle will have little effect on employment, although government expenditure will have some effect on overall demand.

Within this group, data-processing and systems analysts should enjoy better-than-average employment prospects as the micro-computer industry continues to grow, creating new organization roles. The need for direction and advice relating to computer systems and their applications, for guidelines governing equipment compatibility, software products and service will increase demand for these professionals in a burgeoning computer-literate environment.

The importance placed on science and engineering in our society will create a greater demand for managers with technical expertise. As with other managerial occupations, competition will intensify as the current labour force ages, and more and more experienced workers compete for jobs.

Earnings

The Wyatt Company, in a 1986 report on executive remuneration, provided the following salary information on middle-management positions in engineering, research and data processing: plant/facility maintenance engineering manager, $41,000 to $51,300; chief design engineer, $42,200 to $65,700; research and development manager, $40,600 to $57,400; administrative engineering manager, $40,000 to $61,100; electronic data processing manager, $42,200 to $61,100; systems analysis manager, $37,900 to $57,600; data processing operations manager, $45,200 to $49,000.

Based on the National Graduate Survey, salaries for 1982 university graduates in 1984 averaged $35,042, and for community college graduates, $20,043.

Management Occupations, Social Sciences and Related Fields 1132

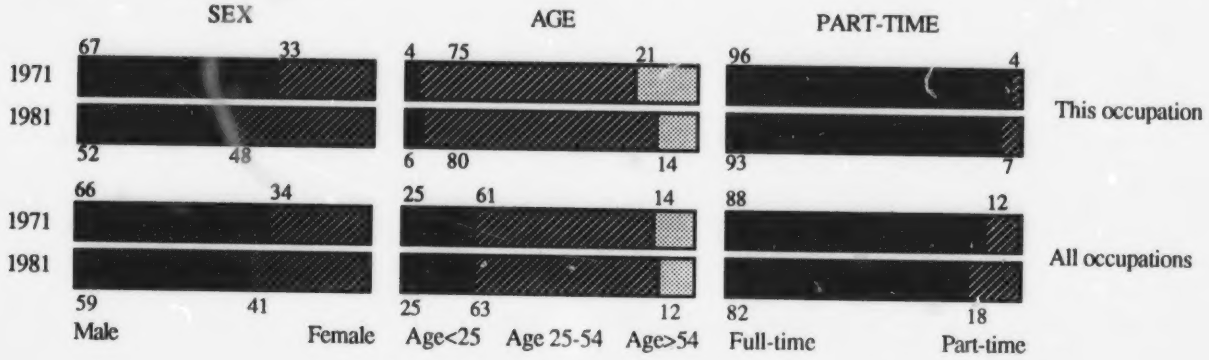
Employment Trends and Projections

	Employment 1981	 1986	 1995	Average Annual Growth Rate (%) 1971-81	 1981-86	 1987-95
This Occupation	8,200	9,800	11,100	13.6	3.8	1.3
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation 1987-95	 % of 1987 Jobs	All Occupations % of 1987 Jobs
Net New Job Openings	1,100	11.0	11.1
Replacement Openings	2,100	20.7	49.2
Total Job Openings	3,200	31.7	60.3

CENSUS – 1971 and 1981 (%)



1981 CENSUS – Main Industries of Employment (%)

Services (72)
- Oth Health Services (40)
- Education (13)
- Misc Services (8)

Public Administration (22)
- Provincial Admin (11)
- Municipal + Oth Gov't (6)
- Federal Admin (4)

Trade (3)
- Retail Trade (2)

Geographic Distribution of Employment – 1981 (%)

Newfoundland	0.9	Ontario	31.6
Prince Edward Island	0.6	Manitoba	4.3
Nova Scotia	2.7	Saskatchewan	3.8
New Brunswick	1.7	Alberta	9.7
Quebec	36.1	British Columbia	8.3

Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
– College (1981-86)	51	21.3
– University (1981-86)	188	78.7
Trade Vocational Schools (1983/84 only)	0	0.0

Management Occupations, Social Sciences and Related Fields

Job Environment

This grouping includes administrators, such as art gallery managers, community centre directors, museum directors, welfare agency officials and welfare managers. These middle managers are concerned with activities in the social sciences — economics; sociology; psychology; social work; law and jurisprudence; library, museum and archival sciences; education; vocational counselling; and community services. They co-ordinate operations within their departments, implement policies developed by senior managers and exchange information and negotiate matters with other managers, specialists and subordinates to arrive at decisions.

Educational Background and Skills

Individuals seldom enter this occupation directly from the formal education system but rather after acquiring years of experience. Most have a post-secondary diploma or certificate or a degree in some related field of study. Prospective social science managers should have good organizational and managerial skills, as well as an in-depth knowledge of their organization's operations. They should be able to communicate effectively, relate well with people of different backgrounds, and estimate financial, human and material resources.

Nature of Supply

New entrants to these occupations generally have a university degree in elementary/secondary teacher training, business, social work/welfare (directors of social work), history (museum directors) or library/records science (library director) or a community college diploma or certificate in social services. Immigration has added only slightly to the supply of social science managers.

While most managerial occupations are dominated by men, in the social sciences equal numbers of men and women held positions in 1981. Entry into this field generally occurs between the ages of 30 and 34, because of the time necessary to acquire education and experience. The average age (41) is therefore higher than for most other occupations. The average career span of a social science manager is 30 to 35 years.

Market Conditions and Job Prospects

Projected employment growth for this occupational group is about the same as for the labour market at large, based on the outlook for services and public administration. This is a slight departure from the situation in the 1970s, when employment grew at a faster-than-average pace. Over the projection period, 1,100 new jobs and 2,100 additional replacement openings are anticipated.

Several factors affect job opportunities, such as the increasing number of qualified, experienced workers seeking promotion; the trend toward employment of more highly educated personnel; and the increasing importance of preventative measures in fields such as clinical sociology, criminology and environmental sociology. Candidates with administrative and business qualifications in addition to their social science specialties will have an advantage in the labour market.

Earnings

The Pay Research Bureau indicates that the 1987 annual salaries of social workers acting as department heads or as co-ordinators of social service programs ranged from $34,216 to $41,196.

The salaries of federal librarians in charge of a moderately sized or small but specialized library ranged from $31,551 to $36,987 in 1987; chief librarians in charge of medium-sized but complex libraries earned between $34,453 and $43,352, while chief librarians in large, specialized libraries earned between $38,828 and $47,464.

Administrators in Teaching

1133

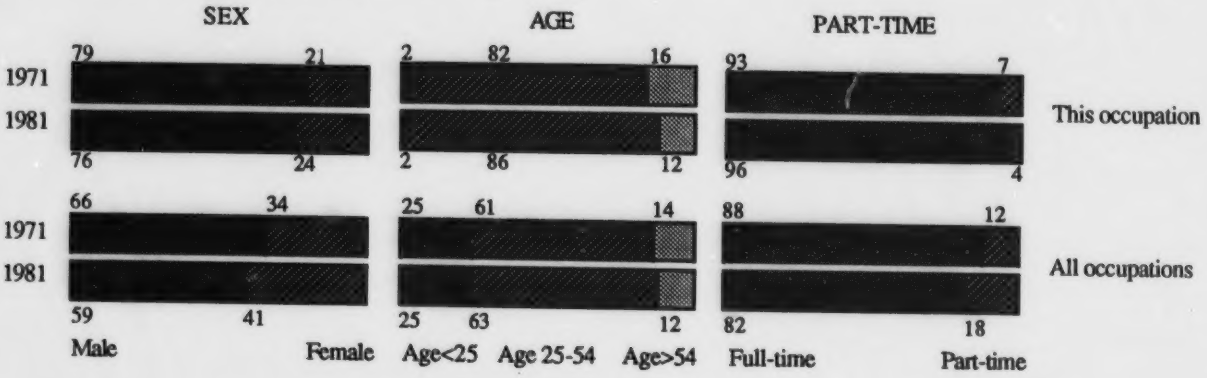
Employment Trends and Projections

	Employment			Average Annual Growth Rate (%)		
	1981	1986	1995	1971-81	1981-86	1987-95
This Occupation	34,000	37,200	41,800	2.0	1.8	1.1
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation		All Occupations
	1987-95	% of 1987 Jobs	% of 1987 Jobs
Net New Job Openings	3,600	9.5	11.1
Replacement Openings	15,500	40.7	49.2
Total Job Openings	19,200	50.2	60.3

CENSUS – 1971 and 1981 (%)



1981 CENSUS – Main Industries of Employment (%)

Services (94)
- Education (91)
- Oth Health Services (1)

Public Administration (4)
- Provincial Admin (3)
- Federal Admin (1)

Geographic Distribution of Employment – 1981 (%)

Newfoundland	2.6	Ontario	31.6
Prince Edward Island	0.5	Manitoba	3.8
Nova Scotia	3.6	Saskatchewan	4.9
New Brunswick	2.8	Alberta	10.6
Quebec	29.1	British Columbia	9.9

For further information, contact:

Canadian Teachers' Federation
110 Argyle Avenue
Ottawa, Ontario K2P 1B4
(613) 232-1505

Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
- College (1981-86)	39	5.3
- University (1981-86)	697	94.7
Trade Vocational Schools (1983/84 only)	0	0.0

Administrators in Teaching

Job Environment

School administrators are responsible for staffing, scheduling classes, co-ordinating school activities, and representing their schools to outside community groups. Superintendents and assistants, who head the educational bureaucracy in elementary and secondary school systems, are responsible for ensuring that the schools operate in compliance with school board policy decisions. This classification also includes university and college registrars, department heads and presidents as well as various business college administrators.

Principals, the most numerous school administrators, are the heads or principal teachers of a school. Essentially, principals implement school board/Ministry of Education policy and monitor school programs. They provide leadership to teachers, support staff and pupils, making decisions concerning teaching assignments, scheduling, school activities, discipline and classroom procedures. Much of a principal's time is spent conferring with teaching staff members. At various times they meet with parents and other members of the community.

Educational Background and Skills

The majority of administrators in the elementary and secondary school systems have a teaching certificate, an undergraduate degree and teaching experience. Many have a master's degree in education. School administrators elsewhere generally have a university degree or a specialized community college diploma in institutional management. Rarely is entry into these occupations immediate upon graduation as teaching-related experience is usually required.

Nature of Supply

People returning to the labour force after some period of separation, and immigrants add little to the supply of administrators in education. Preliminary data indicate that the movement of people into these occupations from areas such as teaching, exceeds the flow out to other occupations, an indication that many reach these positions in the latter part of their careers.

Although the occupation is numerically dominated by men, the number of women has been rising slowly since 1971. The majority of teaching administrators work in Quebec and Ontario, but the highest concentrations per capita are in Newfoundland, Saskatchewan and Alberta. Because of the necessary education and experience requirements, individuals usually do not enter this occupation until the ages of 35 to 39 years. Departures may begin between the ages of 50 and 54, implying typical career spans of 10 to 20 years.

Market Conditions and Job Prospects

Stable employment patterns are evident in this occupational category in which average employment growth is expected over the next eight years.

Although administration jobs in education are insulated from fluctuating business conditions, they are nonetheless susceptible to demographic shifts. Employment is also affected by student/teacher ratios and federal/provincial expenditures on education.

Over the forecast interval, 3,600 new teaching administration jobs and 15,500 replacement opportunities are expected. The relatively high number of replacement openings reflects the older-than-average age structure for this occupational group. The Canadian Teachers' Federation likewise anticipates large replacement requirements over the next decade.

Indicators of current labour market conditions suggest that unemployment is extremely low for this group. However, competition for administrative positions remains intense among aspiring secondary and elementary school teachers.

Earnings

The 1984-1985 average annual salary for administrative staff is listed in the following table.

Positions	Prevailing Range[1]	Average[2]
Principal		
— elementary	$36,115 — $49,450	$46,540
— secondary	39,367 — 56,539	50,438
Vice-Principal		
— elementary	35,090 — 44,440	42,658
— secondary	36,703 — 49,518	46,335
Departmental Head		
— elementary	32,286 — 41,084	39,046
— secondary	34,787 — 44,200	43,197

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[1] Salary data for Quebec and British Columbia not included.

[2] Special tabulations from the Education, Culture and Tourism Division of Statistics Canada.

Administrators in Medicine and Health

1134

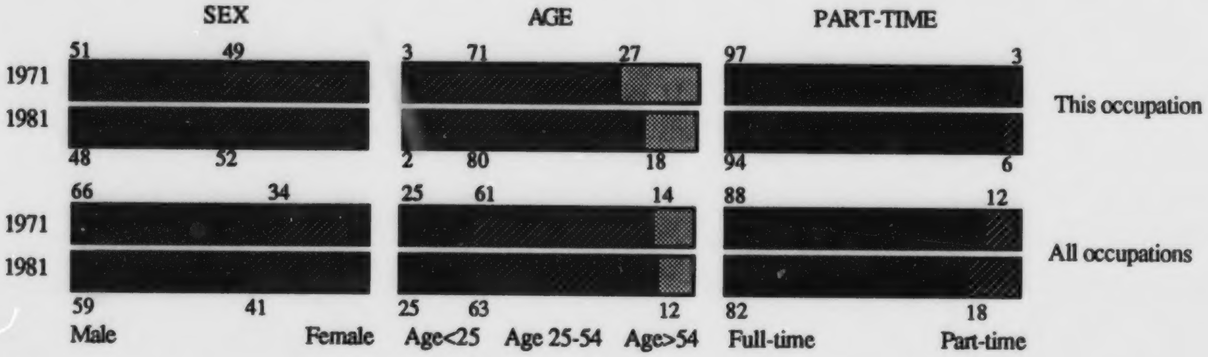
Employment Trends and Projections

	Employment			Average Annual Growth Rate (%)		
	1981	1986	1995	1971-81	1981-86	1987-95
This Occupation	10,800	12,300	13,700	8.7	2.7	1.0
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation		All Occupations
	1987-95	% of 1987 Jobs	% of 1987 Jobs
Net New Job Openings	1,100	8.4	11.1
Replacement Openings	5,000	39.7	49.2
Total Job Openings	6,100	48.1	60.3

CENSUS – 1971 and 1981 (%)



1981 CENSUS – Main Industries of Employment (%)

Services (91) - Hospitals (67) - Oth Health Services (19) - Education (2)	Public Administration (6) - Provincial Admin (4) - Federal Admin (1)	Manufacturing (1)

Geographic Distribution of Employment – 1981 (%)

Newfoundland	2.5	Ontario	36.8
Prince Edward Island	0.4	Manitoba	6.9
Nova Scotia	3.3	Saskatchewan	5.4
New Brunswick	2.4	Alberta	10.8
Quebec	20.8	British Columbia	10.6

Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
- College (1981-86)	93	19.7
- University (1981-86)	380	80.3
Trade Vocational Schools (1983/84 only)	0	0.0

For further information, contact:

Canadian Association of Schools of Nursing
University of Montreal
Station A, P.O. Box 6128
Montreal, Quebec H3C 3J7
(613) 545-2669

Health and Welfare, Canada
Health Information Division
Room 1364
Brooke-Claxton Building
Ottawa, Ontario K1A 0K9
(613) 957-3076

Canadian Dietetic Association
Suite 604
480 University Avenue
Toronto, Ontario M5G 1V2
(416) 596-0857

Administrators in Medicine and Health

1134

Job Environment

Health services administrators are responsible for setting policies and managing the health care system. They include hospital administrators, chief dieticians, and directors of occupational health, public health, therapeutic services, volunteer services and admitting departments. The hospital administrators group can be further broken down into chief executive officers (CEOs), directors of nursing (DONs), medical officers of health (MOHs), non-medical administrators (NMAs) and directors of public health nursing (DPHNs). Health services administrators work in hospitals, clinics, extended care facilities, public health agencies and associations, health-planning and policy-making agencies, commissions and government departments.

Educational Background and Skills

Personal qualities important in this career are leadership ability, a desire to serve others, an ability to relate to other health professionals, and the capacity to work under pressure.

In the past, people with natural management abilities could progress through careers in such fields as nursing, medicine or accountancy into health care administration. Now, however, formal training in administration is becoming indispensible as a prerequisite for entry into most administrative jobs in this area. Courses in hospital management, offered by the Canadian Hospital Association, are open to individuals experienced in the field. Professional certification from the Canadian College of Health Service Executives is recommended for those seeking career advancement.

Nature of Supply

According to a 1984 survey, 51% of post-secondary graduates entering health care administrative positions held baccalaureate degrees in such areas as nursing, psychology and rehabilitation medicine. Most of the others came from graduate university programs in administration, nursing and other health sciences, and from community college programs in management, administration and social services. Another significant source of supply was the household sector.

At the time of the 1981 Census, 52% of health and medicine administrators were female, a marginal increase over the proportion of ten years earlier. The average age of all administrators was 43, with very few persons less than 25 years of age, and a relatively high proportion of the labour force aged 55 or more. Most people first enter this labour force between the ages of 30 and 45, with retirements not beginning in significant numbers until age 65. This implies a career length of at least 20 years.

Market Conditions and Job Prospects

Employment in this area is expected to increase somewhat more slowly than in the 1970s, and slightly more slowly than the average rate of all occupations, over the forecast period.

Employment is concentrated in hospitals and other health services, with public administration accounting for a minor share of jobs. These occupations are generally not affected by an economic downturn but are somewhat sensitive to government expenditure policies.

As the use and cost of health care increases, managers/administrators will be required to monitor and control expenditures and consult on hospital facilities. If the current trend of hiring health care entrepreneurs or contract managers at some hospitals increases, there may be more job opportunities with contracting firms. Technological innovations such as centralized financial and computer information systems will make these managers more efficient and effective.

The shift towards chronic care facilities such as nursing homes, and the provision of new services such as day surgery, home care and day care may increase the demand for personnel to administer these programs.

Earnings

Based on the 1984 National Graduate Survey, salaries paid to 1982 university graduates in this profession averaged $31,489. Community college graduates received $20,719.

Medical administrators in Ontario received annual earnings ranging from a minimum of $27,161 to a maximum of $53,233. Community health service regional directors in New Brunswick in 1986 earned annual salaries ranging from $41,522 to $49,869. Hospital administration consultants in Alberta earned salaries ranging from $32,640 to $42,996.

Financial Management Occupations 1135

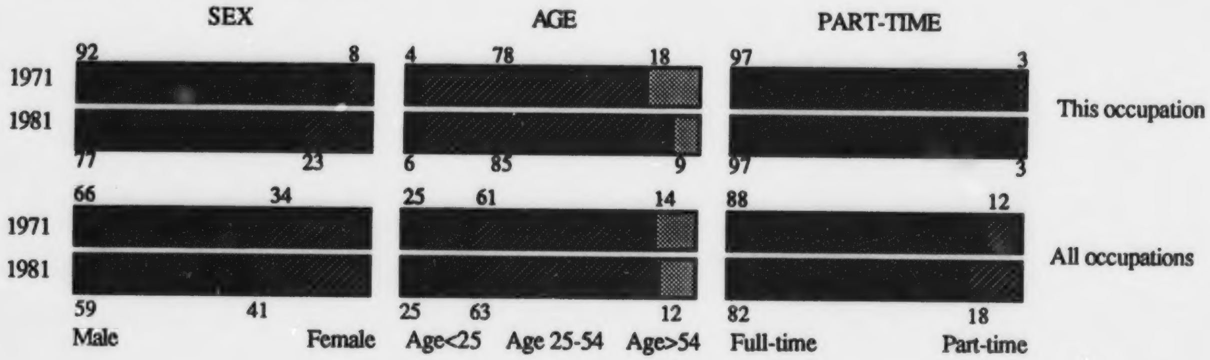
Employment Trends and Projections

	Employment 1981	Employment 1986	Employment 1995	Average Annual Growth Rate (%) 1971-81	Average Annual Growth Rate (%) 1981-86	Average Annual Growth Rate (%) 1987-95
This Occupation	58,600	63,700	72,000	21.6	1.7	1.3
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation 1987-95	This Occupation % of 1987 Jobs	All Occupations % of 1987 Jobs
Net New Job Openings	6,800	10.5	11.1
Replacement Openings	16,000	24.5	49.2
Total Job Openings	22,800	35.0	60.3

CENSUS – 1971 and 1981 (%)



1981 CENSUS – Main Industries of Employment (%)

Fin+Ins+Real Estate (69) - Fin+Ins+Real Estate (69)	Manufacturing (8)	Trade (8) - Wholesale Trade (5) - Retail Trade (3)

Geographic Distribution of Employment – 1981 (%)

Newfoundland	1.4	Ontario	41.6
Prince Edward Island	0.3	Manitoba	4.2
Nova Scotia	2.8	Saskatchewan	3.7
New Brunswick	2.3	Alberta	10.3
Quebec	22.7	British Columbia	10.3

Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
- College (1981-86)	169	17.4
- University (1981-86)	803	82.6
Trade Vocational Schools (1983/84 only)	0	0.0

For further information, contact:

Canadian Institute of Chartered Accountants
250 Bloor Street West
Toronto, Ontario M5S 2Y2
(416) 927-2315

The Society of Management Accountants of Canada
Box 176 M.P.O.
154 Main Street East
Hamilton, Ontario L8N 3C3
(416) 525-4100

Financial Management Occupations

1135

Job Environment

This occupational category includes bank directors, branch managers, loan managers, controllers, and vice-presidents of finance. Traditionally these people have been viewed simply as money-lending officers. Today's versatile bankers, however, are also experts in management, marketing, industry and financial analysis. They oversee chequing and savings account services, loans, trust services and portfolio management, and provide financial advice to individuals and corporate customers. As new technologies take over routine accounting functions, financial managers will most likely also assist in the development of computer software applications. In the complex world of finance, these managers must act quickly, positively and accurately, and sometimes under a great amount of pressure.

Educational Background and Skills

As in most other managerial occupations, these positions are not attained directly from the educational system but through internal promotion. Most financial managers complete a two- to three-year community college diploma or certificate or a three- to four-year university degree. Many also take a one- to four-year special program given by the Canadian Bankers Association or the Canadian Credit Institute. A minimum of three years of related work experience is necessary before becoming a manager. Managers of financial departments in industrial or commercial organizations must be experts not only in financial management, but also in the operations and finance requirements of their industries and firms. Financial knowledge in business has become so important that the proportion of chief executives with financial backgrounds has risen more than 13% in recent years.

Nature of Supply

Most university graduates entering these occupations have an undergraduate degree in business administration including accounting (60%), specialized administration (12%) or economics (10%). Community college graduates come mainly from the marketing (20%), accounting (18%), business and commerce (18%) and financial management (12%) fields of study. Fewer labour force re-entrants and immigrants enter these occupations.

Although most financial managers are men, the number of women almost tripled between 1971 and 1981. The average age (39) has declined somewhat since 1971. The majority of financial managers enter the field between the ages of 30 and 34 and leave between the ages of 60 and 64, for an average career of 30 years.

Market Conditions and Job Prospects

The outlook for employment growth in this occupational group is about the same as for the labour market in general, based on prospects for the finance, insurance and real estate industries. This contrasts with above-average growth experienced during the 1970s. Over the forecast period, 7,000 new jobs are anticipated in addition to 16,000 replacement openings. Since only a small proportion of managers were over 55 years old at the time of the 1981 census, retirements may not affect employment as significantly as in other occupations.

What has increased the demand for these managers is deregulation of the financial sector and the greater number of institutions licensed to provide monetary transactions. Expansion of corporate financial and auditing controls may also improve employment prospects for financial managers. As the size of the working population increases and with it the number of holders of basic accounts and credit cards, more financial managers will be required to serve them. Prospects are particularly good for credit managers and candidates with specializations in commerce and computer science.

Earnings

The following table[1] gives the average annual salary and salary range for four financial management positions:

Top Financial Executive	$68,111	$48,800 – $91,200
Corporate Controller	52,422	39,000 – 66,759
Chief Accountant	39,868	30,749 – 50,099
Division Controller	45,504	33,794 – 59,300

Based on the 1984 National Graduate Survey, the salaries of 1982 university graduates working in this occupational area were $29,519 on average, while those for community college graduates averaged $19,154.

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[1] Sobeco Group Inc., *Management Compensation in Canada*, 1986.

Personnel and Industrial Relations Management Occupations 1136

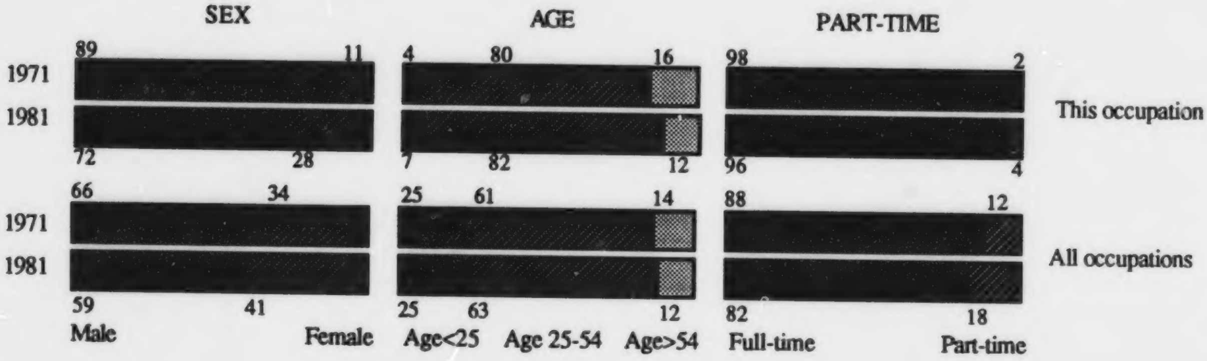
Employment Trends and Projections

	Employment			Average Annual Growth Rate (%)		
	1981	1986	1995	1971-81	1981-86	1987-95
This Occupation	25,800	27,200	30,500	20.7	1.0	1.2
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation		All Occupations
	1987-95	% of 1987 Jobs	% of 1987 Jobs
Net New Job Openings	2,800	10.2	11.1
Replacement Openings	8,300	30.1	49.2
Total Job Openings	11,100	40.3	60.3

CENSUS – 1971 and 1981 (%)



1981 CENSUS – Main Industries of Employment (%)

Services (26)
- Business Services (6)
- Recreation (5)
- Hospitals (3)

Manufacturing (21)
- Food+Beverages (3)
- Machinery (2)
- Electrical Products (2)

Public Administration (19)
- Federal Admin (8)
- Provincial Admin (6)
- Municipal+Oth Gov't (5)

Geographic Distribution of Employment – 1981 (%)

Newfoundland	1.0	Ontario	32.8
Prince Edward Island	0.2	Manitoba	3.3
Nova Scotia	2.3	Saskatchewan	2.4
New Brunswick	1.6	Alberta	8.6
Quebec	38.2	British Columbia	9.0

For further information, contact:

Personnel Association of Ontario
Suite 600
2 Bloor Street West
Toronto, Ontario M4W 3E2
1-800-387-1311

Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
– College (1981-86)	99	28.0
– University (1981-86)	254	72.0
Trade Vocational Schools (1983/84 only)	0	0.0

Personnel and Industrial Relations Management Occupations 1136

Job Environment

The senior managers in this category include employee relations managers, personnel department managers, industrial relations directors and recreation directors. Non-senior personnel officers are listed in occupational code 1174, Personnel and Related Officers. Concerned with the effective use of human resources, personnel managers supervise the hiring and laying off of staff in their organizations. This involves setting personnel policy, determining hiring criteria and directing the selection, training and evaluation of employees. Other activities include the administration of employee benefit plans, the development of wage and salary schedules, and participation in the collective bargaining process.

As the importance of effective human resources management has become more widely recognized, personnel managers have increasingly adopted practices that deal with employee morale, motivation, recreation, human rights, training and career development. Another recent development has been their attention to more carefully planned staff reductions. Early retirements, sabbaticals, work sharing agreements, employee retraining and redeployment are among the measures personnel managers consider for incorporation into their organizations' policies. In such cases, they must strike a balance between compassionate treatment of employees and attainment of the organization's goals.

Educational Background and Skills

These occupations are not generally entry level but rather ones arrived at after some combination of formal educational training, in-house training programs and several years of related experience. At present there are no specific qualifications required for personnel administrators.

Most personnel administrators have an undergraduate university degree in economics, business or specialized administration. Knowledge of electronic data storage and processing systems is becoming increasingly important with increased computerization in this area.

Nature of Supply

Over the projection period, given the situation in 1985, it is estimated that some 3,300 students will enter this occupation from the formal education system. Individuals re-entering the labour force are also a major source of new entrants, while immigration has added only marginally to the number of personnel managers.

Historically men have dominated these occupations, but more and more women are making careers in personnel. The majority of personnel and industrial relations managers are located in the provinces of Quebec and Ontario. From 1971 to 1981, the average age in these occupations declined significantly from 43 to 39 years of age. Most individuals enter these occupations between the ages of 30 and 34 and begin to leave between 60 and 64 years of age, implying a career span of 30 years.

Market Conditions and Job Prospects

Based on the employment patterns of the services, manufacturing and public administration sectors, the forecast is for about average growth of employment in these occupations over the projection period. This is a slight departure from the 1970s and early 1980s, when employment grew at a faster-than-average pace.

The not-too-youthful occupational profile in 1981 will result in a fair number of older workers and potential job vacancies. It is anticipated that 8,000 workers will be required to replace those leaving these occupations as the result of retirements, returns to school, death and emigration. This is in addition to requirements of about 2,800 for new jobs.

Although very sensitive to a downturn in the economy, these occupations will be affected by present concerns for leaner organizations. Production rationalizations, layoffs and redeployment of staff may increase demand for personnel managers and may alter the skills and knowledge needed to implement changes of structure and systems that will accompany changing technology in the workplace.

Earnings

An overview of salaries for a wide cross-section of positions in small and large personnel departments across the country indicates that base salaries for executives range from $50,000 to $60,000 per annum while non-executives could earn from $20,000 to $50,000 per year.[1] Bonuses can increase base salaries by 15% to 25%.

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[1] Hansen Consultants, *1986 Executive and Management Compensation Report*, 1986.

Sales and Advertising Management Occupations

1137

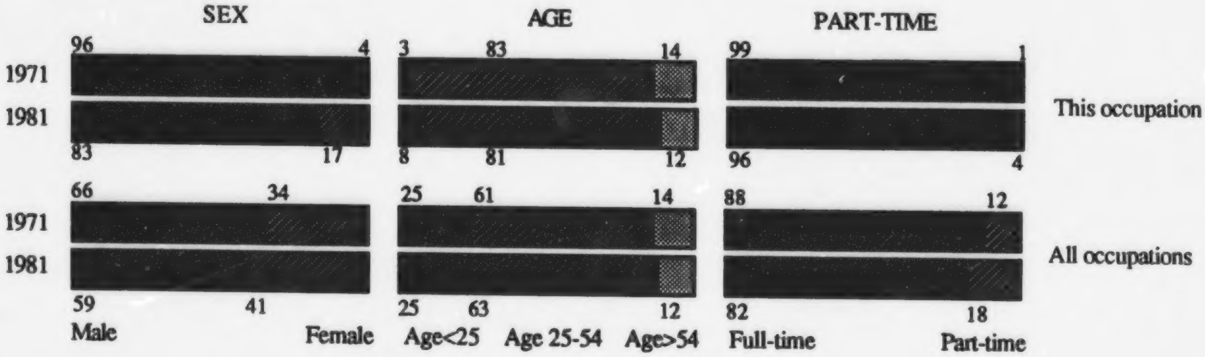
Employment Trends and Projections

	Employment 1981	 1986	 1995	Average Annual Growth Rate (%) 1971-81	 1981-86	 1987-95
This Occupation	177,000	191,900	211,900	19.6	1.6	1.1
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation 1987-95	 % of 1987 Jobs	All Occupations % of 1987 Jobs
Net New Job Openings	17,500	9.0	11.1
Replacement Openings	23,800	12.2	49.2
Total Job Openings	41,300	21.2	60.3

CENSUS – 1971 and 1981 (%)



1981 CENSUS – Main Industries of Employment (%)

Trade (71) - Retail Trade (52) - Wholesale Trade (19)	Manufacturing (15) - Food+Beverages (3) - Printing+Publishing (2) - Chemicals+Chem Prod (2)	Services (7) - Business Services (3) - Misc Services (1) - Accommodation+Food (1)

Geographic Distribution of Employment – 1981 (%)

Newfoundland	1.5	Ontario	36.7
Prince Edward Island	0.4	Manitoba	4.1
Nova Scotia	2.7	Saskatchewan	4.1
New Brunswick	2.2	Alberta	10.8
Quebec	25.5	British Columbia	11.8

For further information, contact:

Association of Canadian Advertisers Incorporated
Suite 1010
180 Bloor Street West
Toronto, Ontario M5S 2V6
(416) 964-3805

Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
- College (1981-86)	891	28.8
- University (1981-86)	1,692	54.6
Trade Vocational Schools (1983/84 only)	515	16.6

Sales and Advertising Management Occupations

Job Environment

This classification includes advertising managers, advertising directors, marketing managers, retail store managers and retail department managers.

Ad managers are largely responsible for their company's image in the marketplace and for the expression of corporate goals through advertising. Working closely with the company's production, design, financial and marketing people, and with technical experts and top managers, they plan and execute effective advertising campaigns. They are often the only major company contact with the advertising agency.

Retail store managers and retail department managers are more preoccupied with sales and the day-to-day operations of their store or department, than solely with advertising and promotion.

Educational Background and Skills

Like most managerial positions, jobs in advertising and sales management are not generally entry-level occupations. Individuals reach this level after some blend of formal training and experience. The qualifications necessary for entering the occupation vary enormously according to the industry and company. For a career in technical sales, a post-secondary degree or certificate in the relevant field is essential. In some instances, such as in real estate and financial securities, licensing is compulsory. Advertising managers must be generalists who, after discussion with individual experts, can make decisions and valid judgements relating to their company's advertising.

Nature of Supply

Most individuals enter these occupations with an undergraduate degree in business, economics, psychology or sociology (50%) or a community college diploma or certificate in business and commerce, marketing or retail sales (30%). Some have completed a trade/vocational program in architectural design/drafting or management and administration. Immigration has played a minor role in supplying individuals in the past.

Although men account for the majority of individuals in the occupation (90%), the situation has recently been changing. The average age in this field declined from 43 in 1971 to 39 in 1981, as a result of increasing numbers of workers under 25 years old, coupled with a declining number of those over 54. The majority of sales and advertising managers enter the occupation between the ages of 30 and 34 and leave between 65 and 69, for an average career span of 35 years.

Market Conditions and Job Prospects

The employment outlook for this occupational group calls for about average growth into the mid-1990s, based on the outlook for the trade, manufacturing and service sectors. About 24,000 replacement job openings in addition to 17,500 new jobs are anticipated.

A considerable proportion of sales managerial jobs are in retail and wholesale trade, with secondary concentrations occurring in the manufacturing and services sectors. Employment in these sectors is fairly stable through the business cycle and throughout the year.

As the trade industry has become increasingly automated (computerized inventory control, sales records, electronically processed orders), the knowledge requirements of sales and advertising managers have expanded. So far, however, this has had little effect on employment in this occupational group.

Earnings

Based on the National Graduate Survey, 1984 salaries for 1982 university graduates averaged $22,870, while community college graduates received an average $15,618.

Given the diversity in employment criteria and the responsibilities of sales and advertising managers, guidelines as to salary structures are difficult to establish. In their 1986 salary survey (Sales and Marketing Report), Thorne, Stevenson and Kellogg show that annual salaries for advertising and sales promotion managers in Canada ranged from $23,600 to $66,000, the annual average salary being $39,400. Sales or branch managers earned an annual average salary of $36,100. With commission and bonus pay, this average increased to $48,000. District sales managers earned an annual average salary of $39,800; with commission and bonus, $58,900.

Purchasing Management Occupations 1141

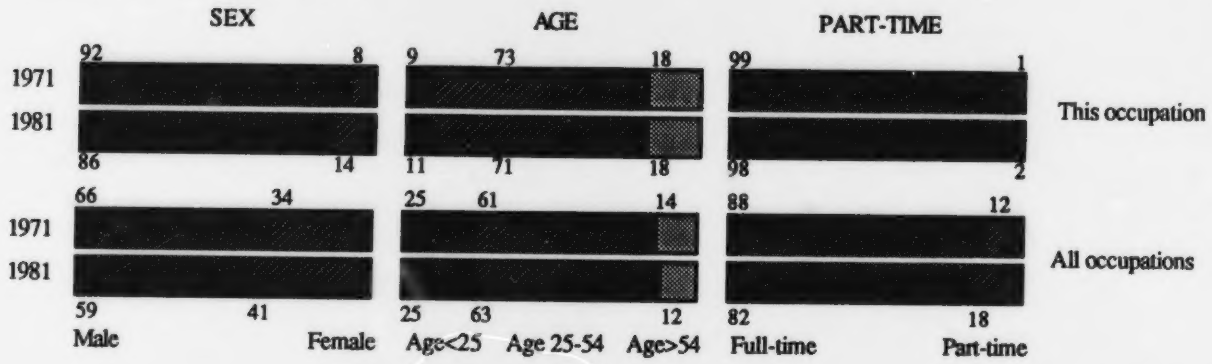
Employment Trends and Projections

	Employment			Average Annual Growth Rate (%)		
	1981	1986	1995	1971-81	1981-86	1987-95
This Occupation	13,100	13,200	14,600	15.2	0.1	1.2
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation		All Occupations
	1987-95	% of 1987 Jobs	% of 1987 Jobs
Net New Job Openings	1,300	9.9	11.1
Replacement Openings	5,300	39.6	49.2
Total Job Openings	6,600	49.6	60.3

CENSUS – 1971 and 1981 (%)



1981 CENSUS – Main Industries of Employment (%)

Manufacturing (29)	Trade (27)	Trans+Stor+Comm+Util (19)
- Machinery (4)	- Wholesale Trade (19)	- Storage (15)
- Food+Beverages (4)	- Retail Trade (8)	
- Metal Fabricating (4)		

Geographic Distribution of Employment – 1981 (%)

Newfoundland	1.0	Ontario	35.5
Prince Edward Island	0.2	Manitoba	5.9
Nova Scotia	2.2	Saskatchewan	12.1
New Brunswick	1.8	Alberta	14.2
Quebec	16.3	British Columbia	10.9

For further information, contact:

Purchasing Management Association of Canada
Suite 815
2 Carlton Street
Toronto, Ontario M5B 1J3
(416) 997-7111

Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
- College (1981-86)	24	32.9
- University (1981-86)	49	67.1
Trade Vocational Schools (1983/84 only)	0	0.0

Purchasing Management Occupations

Job Environment

Purchasing managers are specialists in locating sources of supply and in buying goods, materials or services. They deal with a range of persons, including suppliers, chartered accountants, engineers and factory supervisors. Besides considering simply the sheer cost of commodities and services, purchasing managers develop and interpret technical specifications for goods or materials; study technical publications, documents and advertising materials; interview suppliers; and invite tenders. They also determine whether sales tax is applicable and, in the case of imported goods, what duty and customs documents are required. Other areas of concern include types of transportation, sources of supply, scheduling and insurance coverage.

Educational Background and Skills

As with the majority of management occupations, purchasing managers seldom enter the occupation directly from the education system. Generally those entering the occupation have a university education plus practical experience which may include summer work as a clerical worker in a purchasing department. For large firms or highly technical processes, purchasing managers must have extensive technical expertise. The Purchasing Management Association of Canada offers a formal educational program which leads to a Professional Purchasers diploma.

Nature of Supply

Besides moving up the career ladder (clerk to assistant buyer to buyer to manager) the majority of entrants to the occupation have undergraduate degrees in business or a community college diploma or certificate in business and commerce, industrial engineering or financial management. Over the projection period, it is estimated that some 700 students will enter this occupation from the formal education system. Individuals re-entering the labour force who are willing to undertake the necessary in-house training are another significant source of supply.

Although historically this occupation has been dominated in numbers by males, some redress in the situation has occurred over the 1971 to 1981 period. Most managers enter the occupation between the ages of 25 and 29 and begin leaving between 65 and 69 years of age implying an average career span of 40 years. The average age in 1981 was 40 years.

Market Conditions and Job Prospects

Based on the employment patterns of the manufacturing and wholesale and retail trade sectors, the outlook for these occupations calls for below-average growth over the next eight years, with the creation of 1,300 new jobs. This differs from the 1970s and early 1980s when employment grew faster than the average of all occupations.

Job openings will be mainly through attrition as about 5,300 purchasing managers will be required to replace those who retire or leave the occupation for other reasons; some new jobs will be created with the expansion of the services industry.

These managerial occupations may be slightly sensitive to economic conditions. According to an association survey, technological change is having a positive effect on this group as the demand for sophisticated information increases. This may mean that the projections presented here are underestimates. As computer technology simplifies administrative tasks such as controlling inventory and record-keeping, emphasis will be on negotiating skills and supplier-performance aspects of purchasing. Opportunities should be better for those who are computer-competent, with university degrees, a Professional Purchaser designation and strong inter-personal skills.

Earnings

A recent survey conducted by Maclean Hunter's Research Bureau for *Modern Purchasing* magazine and the Purchasing Management Association of Canada reveals that purchasing managers earned an average of $35,300 in 1985. Salary differences between the sexes declined from 42% in 1983 to 31% in 1985. (Males earned an average of $36,650; females earned an average of $26,930.)

Services Management Occupations 1142

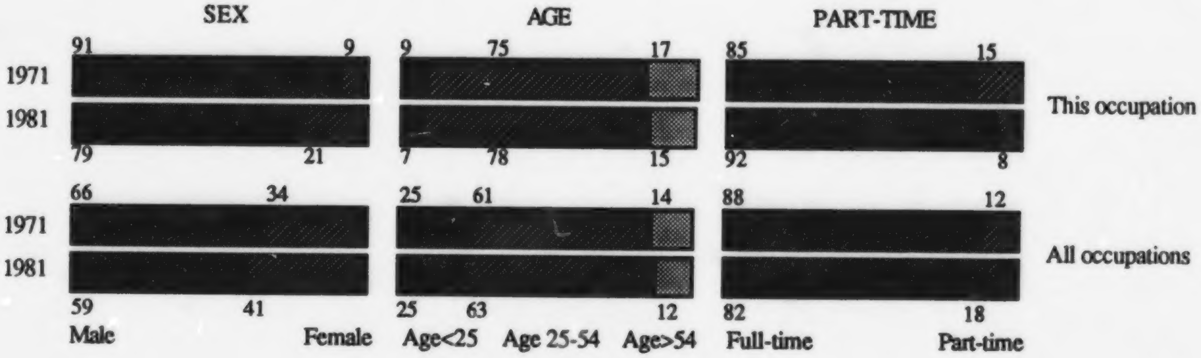
Employment Trends and Projections

	Employment 1981	 1986	 1995	Average Annual Growth Rate (%) 1971-81	 1981-86	 1987-95
This Occupation	3,200	3,700	4,900	21.0	2.7	3.1
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation 1987-95	 % of 1987 Jobs	All Occupations % of 1987 Jobs
Net New Job Openings	1,100	27.2	11.1
Replacement Openings	2,300	59.5	49.2
Total Job Openings	3,400	86.7	60.3

CENSUS – 1971 and 1981 (%)



1981 CENSUS – Main Industries of Employment (%)

Services (90) - Accommodation + Food (74) - Misc Services (7) - Business Services (3)	Trade (3) - Retail Trade (2)	Fin + Ins + Real Estate (3) - Fin + Ins + Real Estate (3)

Geographic Distribution of Employment – 1981 (%)

Newfoundland	1.1	Ontario	33.3
Prince Edward Island	0.3	Manitoba	4.6
Nova Scotia	2.1	Saskatchewan	4.5
New Brunswick	1.7	Alberta	11.0
Quebec	24.9	British Columbia	16.0

Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
- College (1981-86)	363	34.0
- University (1981-86)	509	47.7
Trade Vocational Schools (1983/84 only)	195	18.3

Services Management Occupations

1142

Job Environment

This occupational grouping includes club and lodge directors, restaurant managers and, most numerous, hotel and motel operators. The duties are basically similar although they vary in complexity according to the size of the establishment. Hotel managers set policy, establish marketing concepts, plan advertising and promotional activities, organize and supervise staff, and control costs and expenditures. Those in large hotels supervise, directly or indirectly, between 30 and 35 trades and up to 12 professions. They must work with other managers in charge of sales, rooms division, and food and beverages.

Educational Background and Skills

As with most managerial occupations these positions are not entry level but rather are achieved after sufficient experience in the field is accumulated. In general, secondary school graduation with either a community college or university degree/diploma/certificate is required for entry. It is being suggested now that future hotel managers be professionally qualified in accounting, budgeting, planning, cost control and finance. In addition a secondary school graduate may require up to ten years of in-house training within the hotel industry. Successful managers in these occupations must have a genuine liking for people and have an intimate knowledge of the workings of their organization.

Nature of Supply

Most individuals who enter the occupation have an undergraduate degree (55%) in business or specialized (hotel) administration or a community college diploma or certificate (27%) in institutional (hotel) management, business or service industry technologies (food service management) or a vocational certificate (18%) in business or cooking. Over the projection period, it is estimated that some 8,800 students will enter this occupation from the education system. Immigration and individuals who re-enter the labour force are also important sources of supply. Although males have dominated this occupation (91% in 1971), this situation had changed significantly by 1981 when males accounted for only 79% of services managers. Most service managers are located in Quebec and Ontario although the highest concentration is in British Columbia (70 services managers per 100,000 people). The majority of individuals enter the occupation between the ages of 30 and 34 and begin leaving between 60 and 64 years of age, implying an average career span of 30 years. In 1981 the average age of individuals in these occupations was 41.

Market Conditions and Job Prospects

Between 1971 and 1981, there was significant employment growth in the fields of hospitality and miscellaneous services, a trend that will continue into the mid-1990s. Employment of hotel managers will increase much faster than the average of all occupations. The high turnover of workers, death, retirement and other reasons will provide job openings in the hospitality sector. At the time of the 1981 Census the relatively youthful occupational profile means that a small number of managers are close to retirement.

During recessions, job losses in these occupations should be relatively few, while general economic growth will increase demand as businesses require conferencing and accommodation facilities.

Small business computers and electronic cash registers are used in small hotels while larger computerized systems are used by big hotel chains to keep sales and accounting records. Related applications such as stock control, kitchen production, reservations, room allocation, room service and billing are also computerized. Although these developments will likely affect managerial work by eliminating routine tasks, the overall impact of new technology will be minimal.

Earnings

The average annual salaries of hotel managers vary significantly by size of hotel. The following table indicates the range.[1]

	200-350 Rooms	350-500 Rooms	500+ Rooms
General Manager	$34,000	$45,000	$50,000
Exec. Asst. Manager	28,000	33,000	35,000
Rooms Division Manager	26,000	28,000	28,000
Front Office Manager	22,000	26,000	28,000

Based on the 1984 National Graduate Survey of 1982 graduates, salaries for university graduates were $18,891 while community college graduates received $15,047.

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[1] Renard International Consultants Ltd. 1986. Reprinted with permission.

Production Management Occupations 1143

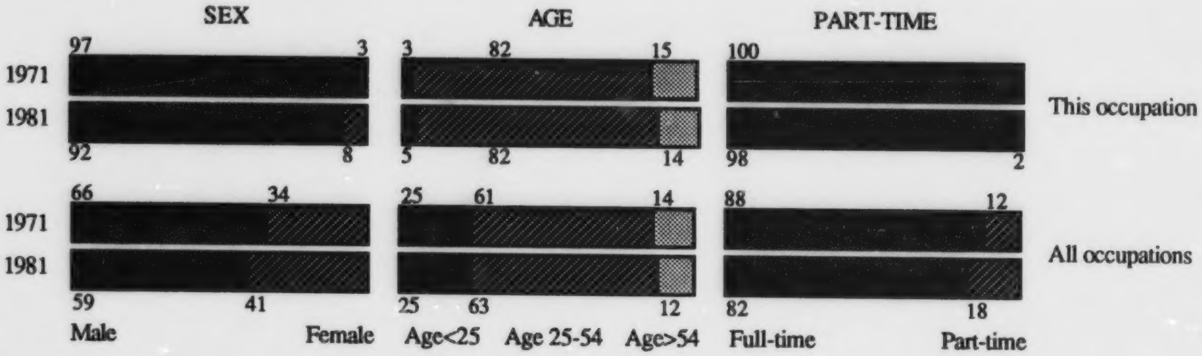
Employment Trends and Projections

	Employment			Average Annual Growth Rate (%)		
	1981	1986	1995	1971-81	1981-86	1987-95
This Occupation	49,100	48,200	53,200	20.9	-0.4	1.1
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation		All Occupations
	1987-95	% of 1987 Jobs	% of 1987 Jobs
Net New Job Openings	4,300	8.8	11.1
Replacement Openings	16,800	34.4	49.2
Total Job Openings	21,100	43.2	60.3

CENSUS – 1971 and 1981 (%)



1981 CENSUS – Main Industries of Employment (%)

Manufacturing (72)
- Food+Beverages (9)
- Metal Fabricating (7)
- Chemicals+Chem Prod (5)

Trade (10)
- Wholesale Trade (7)
- Retail Trade (3)

Services (5)
- Business Services (2)
- Misc Services (1)

Geographic Distribution of Employment – 1981 (%)

Newfoundland	1.0	Ontario	41.9
Prince Edward Island	0.3	Manitoba	3.4
Nova Scotia	2.3	Saskatchewan	1.8
New Brunswick	1.5	Alberta	9.7
Quebec	28.2	British Columbia	9.6

Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
- College (1981-86)	48	10.2
- University (1981-86)	377	80.2
Trade Vocational Schools (1983/84 only)	45	9.6

Production Management Occupations

1143

Job Environment

Included here are factory superintendents, field directors, operation managers, refinery superintendents and production managers. They formulate production programs for their firms by assessing production requirements and plant capacity, taking into consideration the availability of manpower and supplies and financial limitations. They monitor the flow of materials and products and ensure production schedules are maintained. When actual or potential areas of difficulty are identified, they recommend action to remedy or prevent production delays. Production managers also develop time and cost estimates, draw up tooling schedules and develop procedures for assessing the efficiency of machines used in the transformation of products. They often work closely with the engineering and design departments to improve product quality and reliability.

Educational Background and Skills

Production management occupations are not generally entry level but are attained after some combination of formal education, in-house training and experience. At present, there are no specific requirements, although secondary school graduation with some related post-secondary training is considered an asset.

Nature of Supply

The majority of individuals enter these occupations with an undergraduate university degree (78%) in business, specialized administration or engineering or with a community college certificate or diploma in management and administration or financial administration. Over the projection period, approximately 4,100 students will enter this occupation from the formal education system. Individuals re-entering the labour force after some period of separation are also a major source of supply. Immigration contributes few individuals. While movement between occupations cannot yet be measured with precision, preliminary data indicate that the flow of people into this area will exceed the number leaving, which suggests that for many, these occupations represent advanced positions in their careers.

Although men have accounted for the majority of people in these occupations in the past, more women have been moving into this field recently. Since 1971, the proportion of younger workers has increased, resulting in a slight lowering of the average age. Most workers enter these occupations between the ages of 30 and 34 and begin to leave between 65 and 69, for an average career of 35 years.

Market Conditions and Job Prospects

Based on the employment growth prospects for the manufacturing sector, the employment outlook in these occupations calls for below-average growth over the next eight years. In this period, nearly 4,300 new jobs are anticipated. Another 16,800 openings will become available to replace departing personnel.

Since these occupations show some susceptibility to economic conditions, a number of managers may become unemployed during periods of economic recession affecting the goods-producing industries. The wholesale and retail trades employ a minor proportion of workers.

Technological advances, such as computer-aided design and manufacturing, cause managers to expand and combine jobs, thus reducing the number of workers. As a result, there may be fewer line managers and more technically oriented staff managers in the future. On the whole, if the new technology continues to enhance decision-making roles, it may reinforce employment growth in this field.

Earnings

Based on the 1984 National Grade Survey, salaries paid to 1982 university graduates in this occupation averaged $25,195, while community college graduates earned $18,111.

The Sobeco Group has provided 1986 national salary information for various types of production managers. Production superintendents received an average annual salary of $42,181 in 1986, with the majority earning between $32,005 and $56,000. Distribution managers earned on the average $44,755; the majority earned from $35,162 to $53,420. Materials managers earned somewhat less — their average annual salaries were $42,386 and ranged from $30,692 to $55,493. Finally, reported earnings for production control managers were on average $40,578, the majority of salaries ranging from $31,534 to $49,788.

Management Occupations, Construction Operations 1145

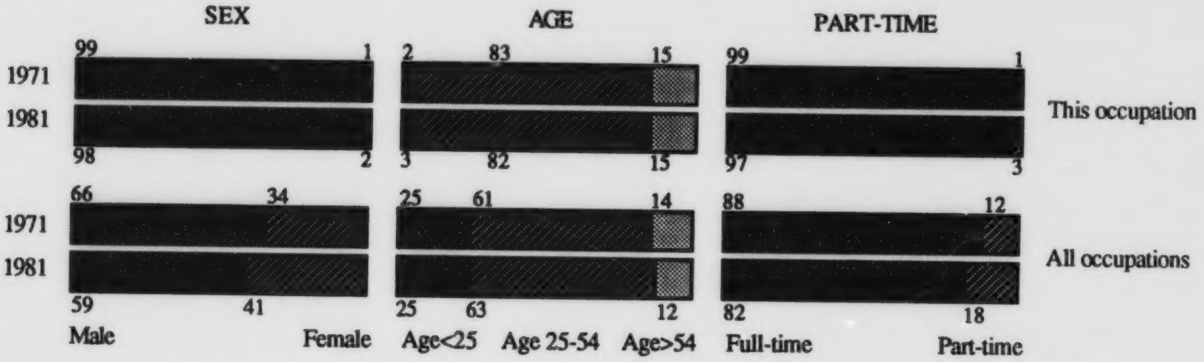
Employment Trends and Projections

	Employment 1981	Employment 1986	Employment 1995	Average Annual Growth Rate (%) 1971-81	Average Annual Growth Rate (%) 1981-86	Average Annual Growth Rate (%) 1987-95
This Occupation	25,300	22,100	27,700	20.3	−2.7	2.5
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation 1987-95	This Occupation % of 1987 Jobs	All Occupations % of 1987 Jobs
Net New Job Openings	5,000	21.7	11.1
Replacement Openings	9,800	42.9	49.2
Total Job Openings	14,700	64.7	60.3

CENSUS – 1971 and 1981 (%)



1981 CENSUS – Main Industries of Employment (%)

Construction (78)	Trans+Stor+Comm+Util (5)	Services (4)
– Construction (78)	– Rail Transport (2)	– Business Services (3)

Geographic Distribution of Employment – 1981 (%)

Newfoundland	1.5	Ontario	30.9
Prince Edward Island	0.4	Manitoba	4.3
Nova Scotia	2.4	Saskatchewan	4.9
New Brunswick	2.8	Alberta	23.5
Quebec	13.8	British Columbia	15.2

For further information, contact:

Canadian Construction Association
85 Albert St., 2nd Floor
Ottawa, Ontario K1P 6A4

Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
– College (1981-86)	59	24.2
– University (1981-86)	185	75.8
Trade Vocational Schools (1983/84 only)	0	0.0

Management Occupations, Construction Operations

Job Environment

Included in this classification are development managers, project managers, construction managers, construction superintendents and road commissioners. Development, project and construction managers are all part of middle management in the construction industry.

The development manager, usually hired by property owners, recommends the best type of development for an area (for example, residential, hotel, shopping centre) and may be involved in the design, construction, leasing or management of the project. The project manager is typically recruited by an owner to plan and build a structure after the purpose of the project has been clearly identified. The project manager's role is to ensure that operations are co-ordinated so that the project is completed on time. Construction managers co-ordinate, supervise, inspect and direct trade contractors with whom they have contracted to construct a project. Additional duties may include providing advice on plans, specifications and costs; conducting cost control; arranging time schedules and organizing the project during the design stages.

Educational Background and Skills

Construction firms generally seek middle managers with effective administrative abilities who can work well with different sorts of personnel. Although technical/trade school is helpful, employers place greater emphasis on management education coupled with a knowledge of engineering and experience in construction.

Technological improvements may change this occupation's skill requirements. For example, computer innovations such as cost-tracking applications, allow construction managers to monitor and manage projects across different provinces, while computerized data on inventory control, material requirements planning, work in progress and cost accounting give managers more control, and ease decision making.

Nature of Supply

Most individuals who enter the occupation have an undergraduate degree in business administration or civil engineering or a community college diploma or certificate in architecture and construction technologies or architectural design/drafting technologies. Given the situation in 1985, it is estimated that, over the projection period, some 2,200 students will enter this occupation from the formal education system. Individuals re-entering the labour force after a period of separation are also a significant source of supply.

The average age of construction managers, 42 years, has changed little since 1971, and the occupation has been, and continues to be, dominated by men. Most managers enter the occupation between 35 and 39 years of age and begin to leave between the ages of 65 and 69, implying an average career of 30 years.

Market Conditions and Job Prospects

During the 10-year period from 1971 to 1981, employment of construction managers increased faster than the average of all occupations; however, there were some recession-related fluctuations in the early 1980s. Into the mid-1990s growth will exceed the overall average based on the outlook for the construction industry. During this time, it is anticipated that some 13,400 additional workers will be required to replace those who retire, return to school, die or emigrate.

Demand for construction managers will coincide mainly with building activity in residential and non-residential sectors. Historically, non-residential sector activities such as oil and gas, factories, offices and hotels have generated considerable employment. Future job opportunities will vary provincially with changing demographics and investment. The construction sector outlook in the short term is expected to improve.

Construction management jobs are somewhat sensitive to business cycles, and some job losses may occur during a recession. However, managers are not likely to be unemployed, since companies continue to operate during an economic downturn. The labour market situation for this occupation, as reflected by the unemployment rate among construction managers, has been slightly better than for most occupations.

Earnings

Depending on experience, complexity of the job, size of the project and location, estimated salaries for construction managers in 1987 ranged from $40,000 to $70,000 a year. Construction managers on large projects can expect to earn from $60,000 to $75,000 a year, while estimated salaries for those on smaller projects are in the $40,000 to $50,000 range. Project co-ordinators can earn between $30,000 and $45,000, and site superintendents earn $50,000 and over.

Based on the 1984 National Graduate Survey, 1982 university graduates in this profession were paid approximately $28,970 in 1984 while community college graduates received $20,419.

Farm Management Occupations

1146

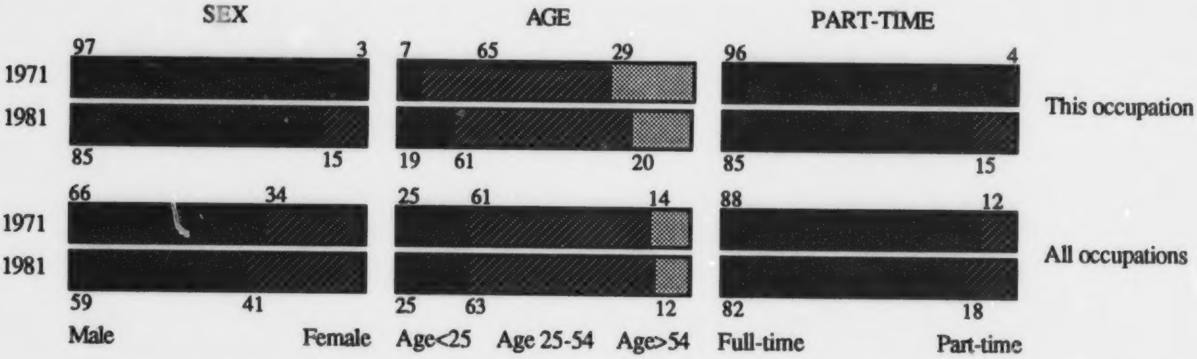
Employment Trends and Projections

	Employment			Average Annual Growth Rate (%)		
	1981	1986	1995	1971-81	1981-86	1987-95
This Occupation	30,100	34,600	37,000	5.7	2.8	1.1
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation 1987-95	This Occupation % of 1987 Jobs	All Occupations % of 1987 Jobs
Net New Job Openings	3,200	9.4	11.1
Replacement Openings	18,300	54.0	49.2
Total Job Openings	21,400	63.3	60.3

CENSUS – 1971 and 1981 (%)



1981 CENSUS – Main Industries of Employment (%)

Agriculture (100)
- Agriculture, Paid (100)

Geographic Distribution of Employment – 1981 (%)

Newfoundland	0.3	Ontario	26.6
Prince Edward Island	1.4	Manitoba	7.2
Nova Scotia	2.1	Saskatchewan	13.5
New Brunswick	1.5	Alberta	16.0
Quebec	22.5	British Columbia	8.7

Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
– College (1981-86)	40	33.1
– University (1981-86)	57	47.1
Trade Vocational Schools (1983/84 only)	24	19.8

Farm Management Occupations

1146

Job Environment

Generally, the larger the farm, the more important and complex is the farm manager's position. In large organizations, the work involves supervision of up to 100 full-time farm workers, as well as the co-ordination of production, marketing, purchasing and credit activities. In these cases, employees perform much of the physical work that small farm managers would do themselves.

Given fluctuating prices and the unpredictability of weather conditions, farm managers must carefully plan the best times to seed, fertilize, cultivate and harvest, and determine what crop combinations will ensure sufficient income if the price of any one crop declines dramatically. They also need to plan ahead on whether to store their crops or keep livestock to take advantage of better prices later in the year.

Educational Background and Skills

Besides physical stamina, farm managers must have good business sense in order to handle financial transactions including marketing, purchasing and credit activities. They must have a thorough knowledge of farm machines, and they must keep abreast of agricultural improvements and new techniques in crop growing, fertilizers and chemical treatments.

In managing a small farm, a farming background or several years of farm experience is a must to cope with the work involved. A willingness to try new processes and a motivation to gather technical knowledge concerning crops and growing conditions, plant and animal diseases, are also desirable qualities. A basic knowledge of accounting and bookkeeping can prove helpful in keeping financial records.

Although no specific qualifications exist for entry into this occupation, secondary school graduation with a two-year community college, or a four-year university degree, is an asset.

Nature of Supply

Of individuals entering this occupation from the education system, 38% have an undergraduate degree/diploma/certificate in Agricultural Science and Agricultural Economics; community colleges (36%) and trade/vocational schools (16%) also provide graduates. Over the projection period, it is estimated that some 900 students will enter this occupation from the formal education system. Individuals re-entering the labour force are also a significant source of supply to farm management occupations.

Males still dominate this occupation, but since 1971, significant numbers of females are becoming farm managers. While the majority of farm managers are located in Quebec (23%) and Ontario (26%) the highest concentration of farm managers is in Saskatchewan (5 per 1,000 people). The average age of the occupation declined from 46 in 1971 to 40 in 1981. The majority of individuals enter this occupation between the ages of 25 and 29 and begin to leave between 60 and 64 years of age, implying an average career length of 35 years.

Market Conditions and Job Prospects

The employment outlook for farm managers calls for about average growth into the mid-1990s reflecting the employment patterns of the agricultural sector in which this occupation is mainly employed. This differs slightly from the 1970s when employment grew at a faster-than-average pace. Over the forecast period, some 3,200 new job openings in this area are expected, compared to about 18,000 replacement job openings.

Technological advances (sometimes knows as "agrimation"), such as computerized systems to regulate feeding, planting and harvesting may change farm structures. Increased mechanization could extend to the use of robotics for harvesting field and orchard crops. Although these developments will increase productivity, they will also reduce farm worker employment which, in turn, may limit opportunities for farm managers.

The outlook for managers with a wide range of scientific, business and personnel management skills is promising, but opportunities are limited to the larger farms.

Earnings

Earnings of farm managers vary greatly from year to year and by type and size of farm. Alberta and Nova Scotia provincial governments provide salary information concerning farm managers in their employ. Alberta government managers earned between $21,576 and $27,276 per annum in 1986. The annual salaries of their counterparts in Nova Scotia ranged from $34,566 to $43,208.

Based on the 1984 National Graduate Survey of 1982 graduates, salaries for university graduates were $19,342, while community college graduates received $14,742.

Management Occupations, Transport and Communications Operations 1147

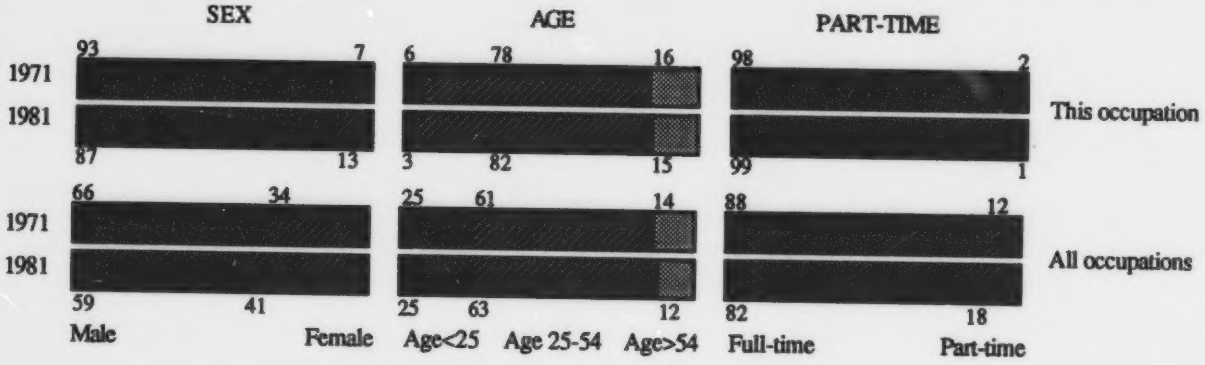
Employment Trends and Projections

	Employment 1981	Employment 1986	Employment 1995	Average Annual Growth Rate (%) 1971-81	Average Annual Growth Rate (%) 1981-86	Average Annual Growth Rate (%) 1987-95
This Occupation	16,600	16,300	17,200	22.4	-0.3	0.6
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation 1987-95	This Occupation % of 1987 Jobs	All Occupations % of 1987 Jobs
Net New Job Openings	800	4.6	11.1
Replacement Openings	5,600	34.0	49.2
Total Job Openings	6,300	33.6	60.3

CENSUS – 1971 and 1981 (%)



1981 CENSUS – Main Industries of Employment (%)

Trans+Stor+Comm+Util (78)
- Telephone+Telegraph (23)
- Misc Transport (23)
- Air Transport (11)

Manufacturing (6)
- Electrical Products (2)

Public Administration (5)
- Federal Admin (4)

Geographic Distribution of Employment – 1981 (%)

Newfoundland	1.8	Ontario	33.8
Prince Edward Island	0.3	Manitoba	4.2
Nova Scotia	2.7	Saskatchewan	3.2
New Brunswick	2.6	Alberta	10.4
Quebec	28.2	British Columbia	11.7

Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
- College (1981-86)	49	24.0
- University (1981-86)	155	76.0
Trade Vocational Schools (1983/84 only)	0	0.0

Management Occupations, Transport and Communications Operations 1147

Job Environment

Airline managers, traffic managers, flight directors and port engineers are examples of job titles in this classification. Managers in the transportation industry oversee workers providing air, rail, water and road transportation services. Theirs is a responsible job, co-ordinating people who are under the pressure of schedules and who may have many lives depending on them. They must ensure that operations run smoothly and in accordance with strict regulations, 24 hours a day.

Communications is largely a matter of understanding people and being able to present information to them. Careers in communications, seemingly glamourous and prestigious, involve a lot of hard work.

Educational Background and Skills

Transport management occupations are not generally entry-level but are arrived at after some combination of formal education, in-house training and experience. It is difficult to outline the specific qualifications necessary, since the occupations in this grouping vary from airport manager to harbour master to television station manager. Certain qualifications, however, are common to all. The candidate should possess good physical and mental health, good interpersonal skills, secondary school graduation (although post-secondary education is a valuable asset), related career experience and should be willing to undergo in-house training lasting up to five years (as for industrial traffic managers).

Transportation managers must be conversant in the new technologies affecting the industry, such as large airline reservation systems, satellite-based train control systems or micro-computers for municipal and transit authorities. The major new applications relate to scheduling, planning, vehicle maintenance, airplane logs, snags and repairs, payroll, ticketing and dispatching installations.

Communications managers require talent, confidence, dedication, a respect for truth, a love of words and language and a desire to communicate.

Nature of Supply

The majority of people entering the occupation from the post-secondary education system have an undergraduate university degree in an area such as business or psychology, or a community college diploma or certificate in protection/correction technologies. Individuals re-entering the labour force after some period of separation are also a major source of entry into the occupation. Preliminary data indicate that movement into this field from related ones will exceed withdrawals, suggesting that for many, these occupations represent advanced career positions.

Market Conditions and Job Prospects

The employment outlook for this classification calls for below-average growth rates through to the mid-1990s, based on the outlook for the transportation and communications industries. Unlike employment in several other services-production industries that are more resistant to cyclical swings, employment in transportation is vulnerable to changes in economic activity. Over the forecast interval, about 800 new job openings and 5,600 replacement job openings are anticipated.

The current tendency in communications to merge datacom and voicecom activities may change the skill requirements and the employment demand for this group. At present, the desirable recruit is a generalist with business, technical and interpersonal skills, who is capable of applying communications technology to the business needs of the company.

Earnings

Based on the 1984 National Graduate Survey, salaries paid to 1982 university graduates working in this occupation averaged $33,588, while community college graduates received $26,704.

Salary Ranges for Airport Managers of International, National and Regional Airports[1]

Site	Airport Classification	Salary Range of Airport Managers
Toronto	International	$54,300 — $63,800
Mirabel	International	50,350 — 59,220
Muskoka	Local commercial	27,536 — 31,021
Ottawa	International	45,701 — 51,591
North Bay	Regional	32,598 — 36,734
London	Regional	38,957 — 43,931
Thunder Bay	Regional	38,957 — 43,931
Winnipeg	International	50,350 — 59,221
Vancouver	International	50,350 — 59,221
Halifax	International	45,702 — 51,591
Calgary	International	50,240 — 59,221

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[1] Transport Canada, 1986

Accountants, Auditors and Other Financial Officers 1171

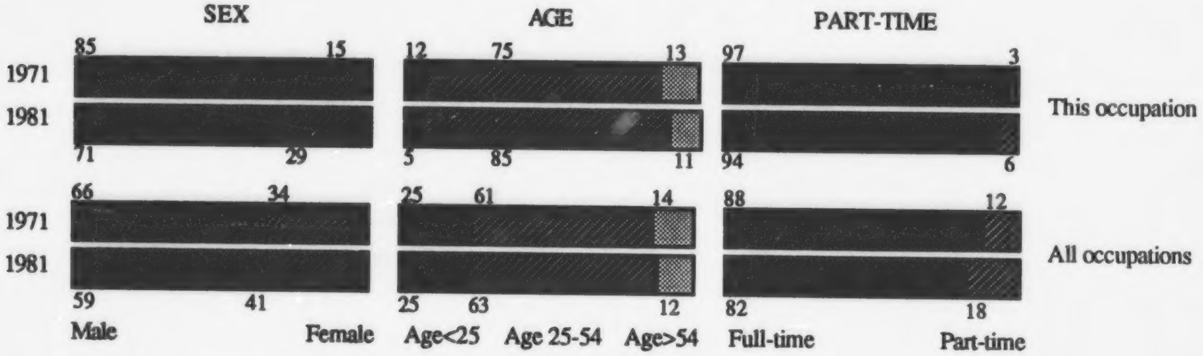
Employment Trends and Projections

	Employment 1981	Employment 1986	Employment 1995	Average Annual Growth Rate (%) 1971-81	Average Annual Growth Rate (%) 1981-86	Average Annual Growth Rate (%) 1987-95
This Occupation	148,400	159,500	182,300	3.7	1.5	1.4
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation 1987-95	This Occupation % of 1987 Jobs	All Occupations % of 1987 Jobs
Net New Job Openings	18,800	11.5	11.1
Replacement Openings	65,900	40.3	49.2
Total Job Openings	84,700	51.8	60.3

CENSUS – 1971 and 1981 (%)



1981 CENSUS – Main Industries of Employment (%)

Services (30)
- Business Services (24)
- Education (2)
- Misc Services (1)

Fin+Ins+Real Estate (25)
- Fin+Ins+Real Estate (25)

Manufacturing (13)
- Food+Beverages (1)
- Metal Fabricating (1)
- Machinery (1)

Geographic Distribution of Employment – 1981 (%)

Newfoundland	1.3	Ontario	41.0
Prince Edward Island	0.4	Manitoba	3.9
Nova Scotia	2.7	Saskatchewan	2.7
New Brunswick	1.9	Alberta	11.8
Quebec	24.2	British Columbia	9.8

Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
- College (1981-86)	1,107	16.3
- University (1981-86)	5,439	79.8
Trade Vocational Schools (1983/84 only)	266	3.9

For further information, contact:

Canadian Institute of Chartered Accountants
250 Bloor Street West
Toronto, Ontario M5S 2Y2
(416) 927-2315

Ontario Institute of Chartered Accountants
69 Bloor Street East
Toronto, Ontario M4W 1B3
(416) 962-1841 in Toronto
1-800-387-0735 out of Toronto

The Society of Management Accountants of Canada
Box 176 M.P.O.
154 Main Street East
Hamilton, Ontario L8N 3C3
(416) 525-4100

Accountants, Auditors and Other Financial Officers

1171

Job Environment

This occupational category includes accountants, auditors, underwriters, tax consultants, loan advisors and various other financial officers. The accounting occupations easily dominate this classification and are therefore the focus of this analysis. The two most widely recognized accounting streams, financial accounting and management accounting, may be practised publicly or privately by accountants having one of three professional designations. The duties and responsibilities of these three designations overlap, although areas of emphasis may differ and and certain restrictions may apply in various provincial or federal jurisdictions.

Chartered accountants (CAs) are the oldest and largest professional accounting designation. Activities of CAs can include tax consulting, estate planning, accounting, auditing, financial advising and, subject to licensing requirements, acting as a trustee in conducting bankruptcy proceedings. About one-half of all CAs work as public accountants. Auditing and tax planning are major activity areas.

Certified general accountants (CGAs) engage in tax consulting, estate planning, accounting, financial advising and, subject to licensing requirements, they act as trustees conducting bankruptcy proceedings or as business valuators. In most jurisdictions, CGAs may conduct audits. CGAs are particularly skilled in systems consulting. More than one-quarter of all CGAs are engaged in public practice. Tax planning and systems consulting are the major activities for CGAs.

Certified management accountants (CMAs) are most often directly employed by manufacturers, commercial enterprises and government. CMAs provide business advice and direction on strategic, tactical and operating decisions. They contribute professional in-depth knowledge on what information is required and how it must be organized and presented to improve decisions across all functions and levels of the organization.

Virtually all accounting professions are affected by the growing use of computerized data processing and electronic data storage. The accounting professional of today must be familiar with computers and various accounting programs.

Educational Background and Skills

As a result of the diversity of this occupational grouping, no single specific set of entry qualifications can be applied. However, generally speaking, applicants must have graduated from secondary school and most often from university or college (university degrees are mandatory in some instances, for example CAs); they must attend in-house training programs; take further courses (correspondence or part-time lectures); be involved in some on-the-job training lasting from one to several years; pass a provincial or national examination; and be licensed (compulsory for such occupations as auditing, securities counselling, bankruptcy).

Nature of Supply

Most accountants are graduates of university programs in business, economics or mathematics although graduates from many disciplines are accepted. Community college graduates from such fields as business and commerce, accounting and financial management, are also an important source of supply, as are individuals re-entering the labour force.

These occupations, while still predominately male, have almost doubled their number of women between 1971 and 1981. Most individuals enter this occupation between the ages of 25 and 29 and begin to leave between 45 and 49 years of age (many to managerial positions), implying a relatively short career span of 20 years.

Market Conditions and Job Prospects

Over the next eight years, employment growth is expected to be average: some 66,000 openings will result from individuals withdrawing from the labour force, and there will be approximately 18,800 new job openings.

New technology and employment in insurance and finance have had a profound effect on working methods and product mix. Overall, the technological impact is positive and promotes these professionals, who engage in long-range planning and management information services. Opportunities should be better for those familiar with computerized banking and investment systems.

Employment in accounting is stable year-round and nearly always full-time in nature. It tends to be little affected by swings in the business cycle.

Earnings[1]

Annual salary ranges in 1986: corporate financial executives, $59,700 to $124,000; corporate controllers, $51,000 to $86,900; corporate accounting executives, $36,100 to $65,000; senior auditors, $29,600 to $49,700; auditors, $24,000 to $35,200; senior cost accountants, $29,000 to $36,000; cost accountants, $20,800 to $33,100; and assistant cost accountants, $19,600 to $23,300. Partners and senior auditors in public accounting firms earn in excess of $100,000 annually.

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[1] Hansen Consultants, *Executive and Management Compensation Report*, 1986

Personnel and Related Officers 1174

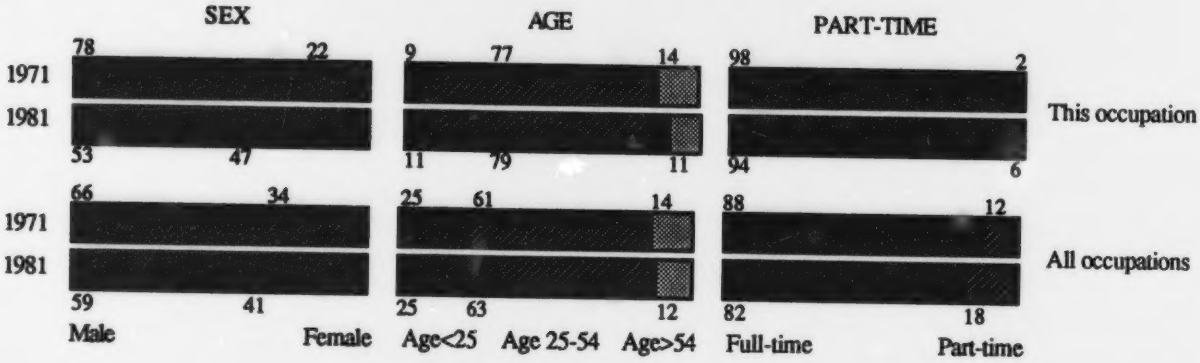
Employment Trends and Projections

	Employment 1981	Employment 1986	Employment 1995	Average Annual Growth Rate (%) 1971-81	Average Annual Growth Rate (%) 1981-86	Average Annual Growth Rate (%) 1987-95
This Occupation	31,100	32,700	36,500	2.5	1.0	1.2
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation 1987-95	This Occupation % of 1987 Jobs	All Occupations % of 1987 Jobs
Net New Job Openings	3,300	10.0	11.1
Replacement Openings	17,500	52.7	49.2
Total Job Openings	20,800	62.8	60.3

CENSUS – 1971 and 1981 (%)



1981 CENSUS – Main Industries of Employment (%)

Public Administration (42)
- Federal Admin (30)
- Provincial Admin (10)
- Municipal+Oth Gov't (2)

Services (23)
- Business Services (12)
- Education (3)
- Misc Services (3)

Manufacturing (10)
- Primary Metals (1)
- Chemicals+Chem Prod (1)
- Food+Beverages (1)

Geographic Distribution of Employment – 1981 (%)

Newfoundland	1.5	Ontario	41.3
Prince Edward Island	0.6	Manitoba	4.3
Nova Scotia	3.0	Saskatchewan	2.4
New Brunswick	2.3	Alberta	10.2
Quebec	22.9	British Columbia	11.0

For further information, contact:

Personnel Association of Ontario
Suite 600
2 Bloor Street West
Toronto, Ontario M4W 3E2
1-800-387-1311

Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
- College (1981-86)	122	12.2
- University (1981-86)	823	82.3
Trade Vocational Schools (1983/84 only)	55	5.5

Personnel and Related Officers

1174

Job Environment

"Personnel Administrator" is a general category that includes personnel assistants, employee relations specialists, industrial relations officers and employment counsellors. Primarily concerned with the productivity and effectiveness of human resources in an organization, the personnel administrator determines staff requirements, analyses job specifications, prepares job descriptions, advertises vacancies, interviews and tests candidates, organizes employee training and development, and helps develop personnel policies and practices. Where a collective agreement is in force, the personnel administrator is usually involved with contract negotiations and implementation of the agreement.

Educational Background and Skills

Although there are no specific qualifications for entry into this occupation most individuals have completed secondary school, obtained a community college diploma or certificate or a bachelor's degree. Post-graduate degrees are becoming more prevalent, however. In addition to the formal training process most personnel administrators have completed in-house training programs or, as happens in Ontario, they have completed a program established by provincial personnel associates bodies.

Nature of Supply

The majority of Personnel and Related Officers enter these occupations with a bachelor's degree (70%) in business, sociology, education non-teaching or elementary/secondary teaching training. Another 10% have post-graduate degrees in business and psychology. According to 1984 data, individuals who came to these occupations from community colleges (14%) did so with diplomas or certificates in business and commerce and management and administration. Over the projection period, given the situation in 1985, it is estimated that some 8,900 students will enter this occupation from the formal education system. Individuals re-entering the labour force are also a major source of supply. Preliminary data indicate that movement into these occupations will slightly exceed movement out.

Although historically these occupations have been primarily composed of men (75%), by 1981 about 50% were women. The majority of personnel managers work in Quebec (23%) and Ontario (41%) with the latter also having the highest concentration per capita: two Personnel and Related Officers per 1,000 people. The average age (37) has declined significantly since 1971 (41), largely the result of a decline in the number of people older than 54 years of age. Most people enter these occupations between the ages of 25 and 29 and begin to leave between 45 and 49 years of age, implying an average career span of 20 years.

Market Conditions and Job Prospects

Employment growth has historically been slightly slower than the average for all occupations. For the forecast period however, the employment growth rate for these occupations is projected to be very close to the overall average employment growth rate in the labour market. More sophisticated and more extensive human resource planning in industry is partly responsible for the optimistic outlook. Current labour market conditions for this occupation are among the most favourable. The incidence of unemployment is quite low compared to most other occupations. Approximately 21,000 hirings of personnel officers are expected over the next eight years, including hiring for new jobs as well as replacement hirings. This outlook is based on the expected employment performance in the public administration, services and manufacturing sectors, where this occupational group is concentrated.

Employment of personnel administrators tends to be exceptionally stable. There is no seasonal variation in employment, there is little sensitivity to changing business conditions and nearly all of the work is full-time.

Apart from employment counsellors, who tend to be concentrated in public administration, Personnel and Related Officers are widely distributed across all industries.

Earnings

Hansen Consultants reported in a 1986 salary survey that the salary range for personnel administrators was between $25,600 and $40,900 per year ($32,300 average salary). Compensation analysts earned between $23,800 and $30,100 ($25,700 average salary) while senior analysts earned between $26,200 and $40,400 ($34,500 average salary). The salary range for recruiting interviewers was between $24,500 and $35,800 ($28,100 average salary) and for training specialists $22,300 to $41,000 per year ($31,500 average salary). In 1984, earnings averaged $22,761 for 1982 university graduates working in this area and $18,658 for 1982 college graduates, according to the National Graduate Survey.

Purchasing Officers and Buyers, Except Wholesale and Retail Trade 1175

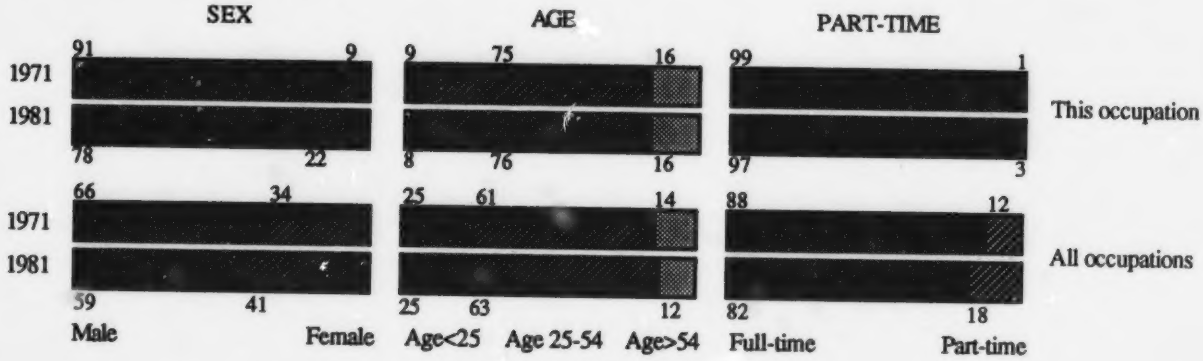
Employment Trends and Projections

	Employment 1981	Employment 1986	Employment 1995	Average Annual Growth Rate (%) 1971-81	Average Annual Growth Rate (%) 1981-86	Average Annual Growth Rate (%) 1987-95
This Occupation	16,400	16,400	18,400	3.7	−0.1	1.3
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation 1987-95	This Occupation % of 1987 Jobs	All Occupations % of 1987 Jobs
Net New Job Openings	1,700	10.5	11.1
Replacement Openings	8,700	52.2	49.2
Total Job Openings	10,400	62.6	60.3

CENSUS – 1971 and 1981 (%)



1981 CENSUS – Main Industries of Employment (%)

Manufacturing (46)	Services (19)	Public Administration (11)
- Food+Beverages (6)	- Business Services (6)	- Federal Admin (6)
- Electrical Products (5)	- Education (4)	- Provincial Admin (3)
- Machinery (5)	- Hospitals (4)	- Municipal+Oth Gov't (3)

Geographic Distribution of Employment – 1981 (%)

Newfoundland	1.0	Ontario	44.7
Prince Edward Island	0.4	Manitoba	2.8
Nova Scotia	1.7	Saskatchewan	1.5
New Brunswick	1.7	Alberta	10.4
Quebec	27.4	British Columbia	8.0

For further information, contact:

Purchasing Management Association of Canada
Suite 815
2 Carlton Street
Toronto, Ontario M5B 1J3
(416) 997-7111

Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
- College (1981-86)	59	37.3
- University (1981-86)	81	51.3
Trade Vocational Schools (1983/84 only)	18	11.4

Purchasing Officers and Buyers, Except Wholesale and Retail Trade 1175

Job Environment

Purchasing officers, also known as buyers, field contractors, procurement officers and purchasing managers, are concerned with buying materials, goods and services for use or further processing by their firms. Although their primary responsibility is to obtain good value for money spent, purchasers must also consider the continuing smooth operation of the company, when weighing the advantage of scheduling delays against the cost of supplies. Activities of a purchaser include developing and interpreting specifications for goods or materials; studying technical publications, documents and advertising materials; interviewing suppliers; inviting tenders and at times, negotiating with vendors. After prices are set and an agreement to purchase is made, purchasers are responsible for scheduling shipments from suppliers and ensuring that deliveries are made on time. They work mainly in an office environment and their work week is usually five days and 35 to 40 hours.

Educational Background and Skills

There is no single educational route into these occupations. While in secondary school, students should take courses in accounting, computers and economics. Initial entry into the field occurs at the clerk or junior buyer level. Candidates with a post-secondary degree, diploma or certificate can usually enter the occupation at the buyer level.

Nature of Supply

The majority of purchasing officers and buyers have a bachelor's degree (67%) in business, economics or mathematics. Other purchasing officers include community colleges graduates (19%) with specializations in financial management, accounting or business and commerce, and trade/vocational school graduates (4%) in secretarial sciences (accounting/bookkeeping) or accounting. According to 1985 estimates, 1,400 students will enter these occupations from the formal education system over the projection period. Individuals re-entering the labour force after some period of separation are also a major source of supply to the occupation. Preliminary data indicate that the flow of people into the occupation from related ones exceeds movement out of the occupation.

Although most workers in this category have been men in the past, the number of women almost tripled between 1971 and 1981. Quebec and Ontario not only account for the majority of purchasing officers and buyers, but they also have the highest concentration per capita, one buyer per 1,000 people. The average age as well as the age structure of these occupations changed only slightly over the 1971 to 1981 period. The majority of individuals enter this field between the ages of 25 and 29 and begin leaving between 50 and 54 years of age.

Market Conditions and Job Prospects

In the past, employment in these occupations has grown at about the same rate as in the labour market at large. Projections to 1995 call for this trend to continue. The economy is expected to generate 1,700 new purchasing positions over the projection period. In addition, 8,000 hirings should occur to replace departing personnel.

Employment in this occupational area tends to be quite stable. There is very little seasonal variation throughout the year and nearly all of the jobs are full-time. Employment is, however, vulnerable to changes in the business climate, especially to conditions affecting manufacturing. More purchasers are employed in manufacturing than in any other industrial sector, although many also work in the services and public administration sectors.

Earnings

Monthly earnings, by region, for senior buyers in 1986 were as follows:[1]

Canada	$2,922
British Columbia	$3,100
Alberta	$3,378
Saskatchewan	—
Manitoba	$2,734
Ontario	$2,797
Quebec	—
Atlantic Provinces	$2,516

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[1] From a 1986 survey conducted by Stevenson, Kellogg, Ernst and Whinney.

Inspectors and Regulatory Officers

1176

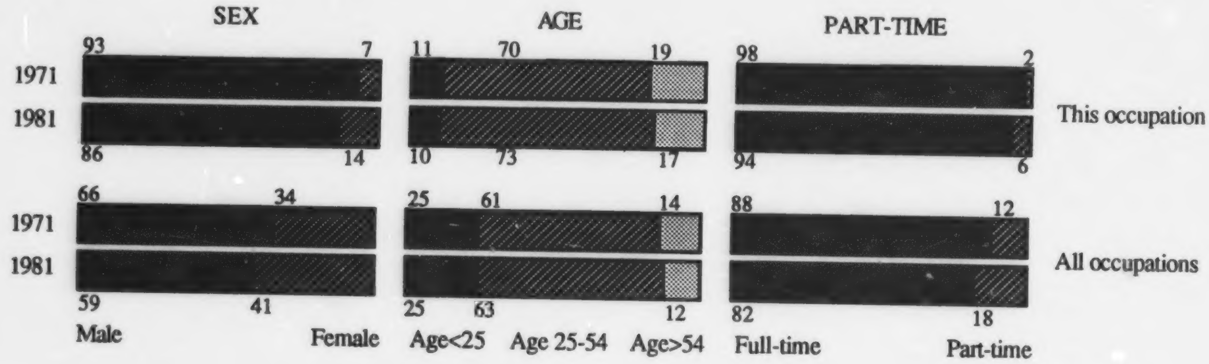
Employment Trends and Projections

	Employment 1981	Employment 1986	Employment 1995	Average Annual Growth Rate (%) 1971-81	Average Annual Growth Rate (%) 1981-86	Average Annual Growth Rate (%) 1987-95
This Occupation	6,600	7,400	8,300	6.7	2.1	1.3
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation 1987-95	This Occupation % of 1987 Jobs	All Occupations % of 1987 Jobs
Net New Job Openings	800	10.7	11.1
Replacement Openings	3,200	43.1	49.2
Total Job Openings	4,000	53.8	60.3

CENSUS – 1971 and 1981 (%)



1981 CENSUS – Main Industries of Employment (%)

Services (35)
- Business Services (12)
- Oth Health Services (10)
- Misc Services (5)

Trans+Stor+Comm+Util (27)
- Urban Transit (7)
- Rail Transport (6)
- Misc Transport (4)

Fin+Ins+Real Estate (14)
- Fin+Ins+Real Estate (14)

Geographic Distribution of Employment – 1981 (%)

Newfoundland	1.6	Ontario	35.8
Prince Edward Island	0.7	Manitoba	4.4
Nova Scotia	3.3	Saskatchewan	3.0
New Brunswick	2.4	Alberta	11.2
Quebec	27.4	British Columbia	9.6

For further information, contact:

Canadian Public Health Association
Suite 210
1335 Carling Avenue
Ottawa, Ontario K1Z 8N8
(613) 725-3769

Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
- College (1981-86)	31	72.1
- University (1981-86)	12	27.9
Trade Vocational Schools (1983/84 only)	0	0.0

Inspectors and Regulatory Officers

1176

Job Environment

This category includes a variety of job titles, such as beauty salon inspector, boiler inspector, coal-mine inspector, mine inspector, railroad inspector, restaurant inspector, ship inspector and other non-government inspecting positions related to safety, quality of service or observance of company policies and procedures. The nature of each occupation determines whether the work is indoors or outdoors (or in a mine).

Educational Background and Skills

This occupational grouping, as is its public sector counterpart (1116 – Government Inspectors and Regulators), is a diverse group of unique occupations, each with its own educational and work experience requirements. Ideally, individuals entering this occupational group have graduated from secondary school and have completed a university or community college program in a field of study related to their occupation. In nearly all cases, inspectors have also acquired lengthy experience in their own area of business. The amount of required experience generally increases along with the complexity of the job. Often inspectors must be willing to undergo on-the-job or classroom training, examinations and, in some instances, a certification process.

Nature of Supply

Individuals who possess the necessary educational background and who are willing to undertake the required additional training are the major source of supply to this occupation. The educational system, primarily community colleges, provides graduates specialized in civil technology, electrical/electronic technologies and protection and correction studies. University graduates entering the occupation generally have bachelor's degrees in architecture. Preliminary data indicate that the flow of people into this occupation has on average exceeded movement out of the occupation.

Although men have dominated this occupation in the past, more women are choosing this career. The majority of non-government inspectors and regulators work in Quebec and Ontario, although Alberta has the highest concentration relative to population (0.4 non-government inspectors and regulators per 1,000 people). The average age of individuals in this occupational group (40) has declined slightly since 1971 as a result of a decrease in the number aged 54 or older. Most people enter this occupation between the ages of 25 and 29 and begin to leave between 60 and 64, for an average career of 35 years.

Market Conditions and Job Prospects

Employment growth in these occupations has been above average over the past decade, and although projections call for a slowdown in employment, these occupations are still predicted to expand at a slightly faster-than-average rate into the mid-1990s. About 800 new job openings and 3,200 replacement openings are expected over the coming eight years.

Labour market conditions for inspecting occupations are among the most favourable in the labour market. Unemployment rates tend to be low because inspectors are still necessary when business volume is below average, and employers are usually reluctant to lose experienced inspectors.

Three-quarters of this work force are employed in the services, transportation, communication and utilities, finance, insurance and real estate sectors. These fields contain many fast-growing industries, which partly accounts for this occupation's favourable outlook. Employment is only mildly affected by changes in the overall business climate, and there is little seasonal variation or part-time work.

Earnings

Safety managers earned from $31,947 to $58,922 annually in 1986, according to the 1986 *Annual Report on Senior and Middle Management Compensation* by the Sobeco Group. For safety and security supervisors, 1986 annual earnings ranged from $27,500 to $46,500, according to Hansen Consultants.

Occupations Related to Management and Administration 1179

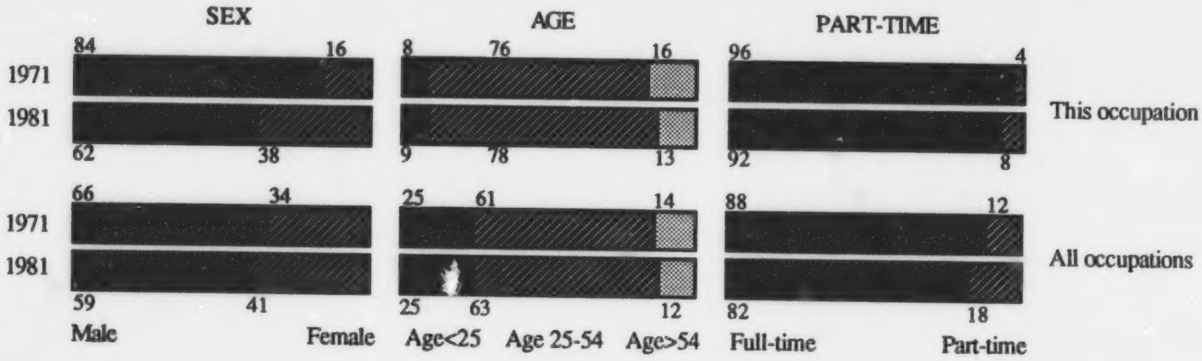
Employment Trends and Projections

	Employment			Average Annual Growth Rate (%)		
	1981	1986	1995	1971-81	1981-86	1987-95
This Occupation	49,500	54,100	61,700	1.4	1.8	1.4
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation		All Occupations
	1987-95	% of 1987 Jobs	% of 1987 Jobs
Net New Job Openings	6,500	11.7	11.1
Replacement Openings	31,500	57.0	49.2
Total Job Openings	37,900	68.7	60.3

CENSUS – 1971 and 1981 (%)



1981 CENSUS – Main Industries of Employment (%)

Services (39)
- Business Services (15)
- Misc Services (11)
- Education (6)

Public Administration (18)
- Federal Admin (9)
- Provincial Admin (6)
- Municipal+Oth Gov't (2)

Manufacturing (14)
- Food+Beverages (2)
- Electrical Products (1)
- Chemicals+Chem Prod (1)

Geographic Distribution of Employment – 1981 (%)

Newfoundland	1.0	Ontario	49.6
Prince Edward Island	0.3	Manitoba	3.5
Nova Scotia	2.2	Saskatchewan	2.6
New Brunswick	1.2	Alberta	10.8
Quebec	17.8	British Columbia	10.7

Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
– College (1981-86)	375	19.9
– University (1981-86)	1,426	75.6
Trade Vocational Schools (1983/84 only)	85	4.5

Occupations Related to Management and Administration

Job Environment

This occupational group includes public relations officers, information officers, business consultants, promoters and various agents (business agents, publicity agents, contract agents and others). They usually work in pleasant office surroundings, but often travel to meetings and various promotional or other functions.

Educational Background and Skills

Generally, candidates for positions in this diverse occupational grouping should have good health, be articulate and imaginative, possess some related post-secondary education and work experience, and have undertaken some in-house training. Interpersonal and communication skills are essential, as personal contact and communication are basic to all public relations, promotion, agent and negotiating jobs. Other desirable traits are an out-going nature, sound judgement and a tolerance for potentially stressful situations.

Nature of Supply

The majority of individuals entering this occupation have a bachelor's degree (63%) in business, mass communications or political science. Alternative sources of new supply from the educational system include community college graduates (20%) from financial management and business and commerce programs, and vocational school graduates (4%) from programs in word processing, secretarial sciences, management and administration, and computer science. Over the projection period, it is estimated that 17,400 students will enter this field from the formal education system. Individuals re-entering the labour force after some period of separation and immigrants are also important sources of new supply to the occupation. While movements between occupations can not yet be measured with precision, preliminary data indicate that the number of persons entering this area will slightly exceed the number leaving it for other occupations. This is characteristic of occupations that represent advanced career positions.

Although this field has been dominated by men, the proportion of women rose from 16% in 1971 to 38% in 1981. The majority of individuals are in Quebec (19%) and Ontario (49%), with the latter also having the highest concentration per capita, three managers per 1,000 people. With the number of people under 25 increasing and the number over 54 decreasing, the average age in this group declined from 41 to 39 over the 1971 to 1981 period. The majority of individuals enter this occupation between the ages of 25 and 29 and begin to leave between 40 and 44 years of age, for an average career length of only 15 years.

Market Conditions and Job Prospects

Employment growth rates for this occupational group were below average during the 1970s, but have since accelerated and, based on the outlook in the services, public administration and manufacturing sectors, are projected to grow in line with overall employment in Canada. Approximately 6,500 new jobs are expected over the coming eight years.

Current labour market conditions for these occupations are on a par with the labour market at large. A person employed in one of these occupations can generally expect stable, full-time employment, although the possibility for part-time employment has increased. There is no seasonal variation in employment, and this occupational category is no more susceptible to changes in general business conditions than other occupations.

Management occupations in public relations and related areas are found in nearly all industrial categories, but are concentrated in the three largest sectors of the economy — services, manufacturing and public administration.

Earnings

Since careers in these occupations attract many candidates, there is no shortage of potential entrants. As a result, starting-level earnings tend to be low. With experience, however, advancement to a position of responsibility that might involve promotion of a firm's or individual's image or products becomes possible. At that point, salaries rise markedly. Starting salaries for recent university graduates averaged nearly $24,000 in 1984, while community college graduates averaged slightly more than $17,000 per year.

Chemists

2111

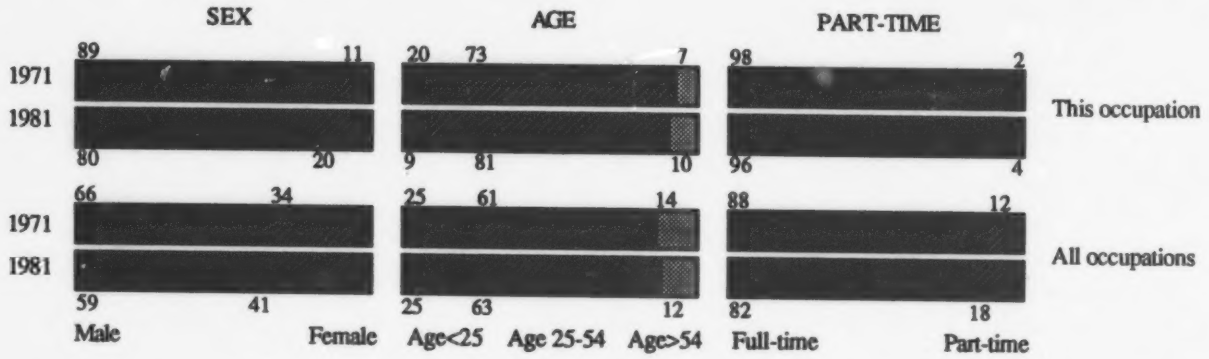
Employment Trends and Projections

	Employment 1981	Employment 1986	Employment 1995	Average Annual Growth Rate (%) 1971-81	Average Annual Growth Rate (%) 1981-86	Average Annual Growth Rate (%) 1987-95
This Occupation	9,100	9,100	10,100	2.8	0.1	1.2
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation 1987-95	This Occupation % of 1987 Jobs	All Occupations % of 1987 Jobs
Net New Job Openings	900	9.6	11.1
Replacement Openings	4,300	46.4	49.2
Total Job Openings	5,200	56.0	60.3

CENSUS – 1971 and 1981 (%)



1981 CENSUS – Main Industries of Employment (%)

Manufacturing (46)
- Chemicals+Chem Prod (23)
- Food+Beverages (5)
- Primary Metals (4)

Services (26)
- Business Services (12)
- Education (11)
- Hospitals (2)

Public Administration (16)
- Federal Admin (10)
- Provincial Admin (6)

Geographic Distribution of Employment – 1981 (%)

Newfoundland	1.3	Ontario	50.4
Prince Edward Island	0.3	Manitoba	3.3
Nova Scotia	2.4	Saskatchewan	2.6
New Brunswick	1.1	Alberta	8.7
Quebec	20.3	British Columbia	9.4

For further information, contact:

The Canadian Society of Clinical Chemists
Suite 480
151 Bloor Street West
Toronto, Ontario M5S 1T3
(416) 595-3279

Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
- College (1981-86)	59	20.6
- University (1981-86)	227	79.4
Trade Vocational Schools (1983/84 only)	0	0.0

Chemists

2111

Job Environment

Specialists in this category include analytical chemists, organic chemists, polymer chemists, petroleum chemists, agricultural chemists and food chemists. They conduct research into the chemical nature of substances, with the aim of either increasing chemical knowledge (basic research) or developing improved materials and processes (applied research). Areas of specialization include organic chemistry, inorganic chemistry, physical chemistry, analytical chemistry, theoretical chemistry and clinical chemistry.

Chemists contribute to technological advances in many fields, such as agriculture, where they have developed new fertilizers and chemicals that increase crop yields. In metallurgy, chemists may research microbes which, in the future, may decrease energy costs, reduce air pollution and extract copper and uranium from low-grade ores. Chemists are found in teaching/research positions in universities and colleges, and in government laboratories and provincial research organizations. Quality control is another area of considerable employment.

Educational Background and Skills

The main path of entry into this occupation is through university training in chemistry, chemical engineering or a related field. This generally takes from three to six years. Although the minimum educational requirement is an undergraduate degree, applicants who possess a graduate degree (master's or doctorate) are preferred in research and teaching.

Nature of Supply

University graduates specializing in chemistry, biochemistry and chemical engineering are the most important source of new supply to this occupation. Some of them may have received college training in chemical technologies previous to university schooling. This occupation offers opportunities for advancement, mostly into management occupations, for experienced chemists who show good leadership and supervising skills.

Between 1971 and 1981, as an increasing number of women chose chemistry for an occupation, their rate of representation in this field rose from 11% to 20%. The age structure of the occupation has changed, reflecting an increase in the minimum educational requirement. The length of academic training prevents most graduates from entering the occupation before age 24. The size of the 15 to 24 age category has declined to the advantage of the 25 to 54 age group. Generally, individuals enter the occupation between the ages of 24 and 30 and begin to leave at the end of their 30s, for a career of 10 to 15 years. Most chemists work in Ontario (50%) and Quebec (20%).

Market Conditions and Job Prospects

The employment outlook for chemists calls for about average growth over the next eight years, based on the outlook in the manufacturing, services and public administration sectors. During this period, approximately 900 new positions and 4,000 replacement openings are anticipated.

Technological change has had little effect on employment in this occupation. An important factor affecting job opportunity, however, is the funding available for chemical research and development. The chemistry field is not as susceptible to changing business conditions as other occupations. Employment is stable year-round and mostly full-time.

Current unemployment rates for chemists are much lower than the average for all occupations. The relative incidence of hard-to-fill vacancies is, however, greater than average. These statistics suggest that current labour market conditions for chemists are more favourable than for most occupations.

Earnings

According to the National Graduate Survey, 1984 salaries for 1982 university graduates in this occupation averaged approximately $25,620, while community college graduates received $21,022 on average. The salary range for an entry-level chemist is $22,000 to $33,000. Senior chemists earn between $33,000 and $53,000, and a director of a laboratory or a program co-ordinator may earn from $47,730 to $58,020. The Canadian Society of Clinical Chemists indicates that average salaries for clinical chemists range from $46,300 in government laboratories to $54,500 in commercial medical laboratories. Section heads earn as much as $67,100.

Geologists

2112

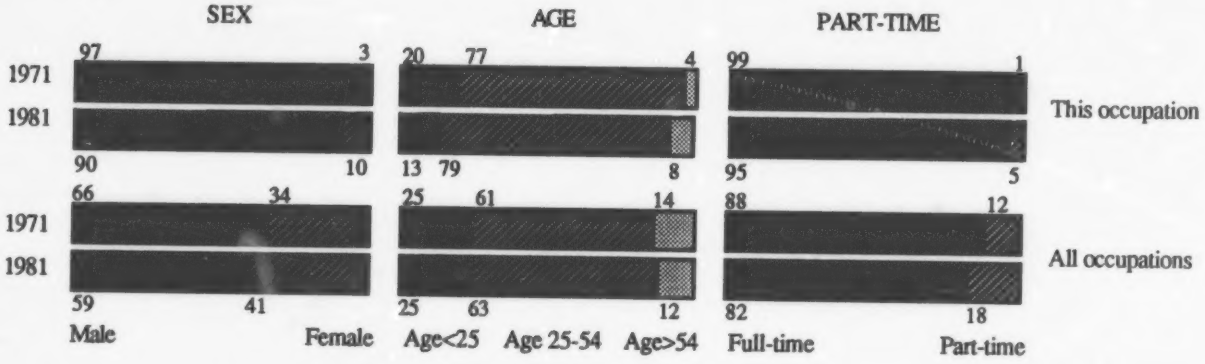
Employment Trends and Projections

	Employment			Average Annual Growth Rate (%)		
	1981	1986	1995	1971-81	1981-86	1987-95
This Occupation	7,000	7,400	8,400	4.7	1.0	1.3
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation 1987-95	% of 1987 Jobs	All Occupations % of 1987 Jobs
Net New Job Openings	900	11.3	11.1
Replacement Openings	2,600	33.9	49.2
Total Job Openings	3,400	45.2	60.3

CENSUS – 1971 and 1981 (%)



1981 CENSUS – Main Industries of Employment (%)

Mining (54)
- Mining-Petroleum+Gas (33)
- Serv Ind to Mining (10)
- Mining-Metal Mining (10)

Services (27)
- Business Services (25)
- Education (2)

Public Administration (13)
- Provincial Admin (7)
- Federal Admin (6)

Geographic Distribution of Employment – 1981 (%)

Newfoundland	1.7	Ontario	19.7
Prince Edward Island	0.1	Manitoba	2.5
Nova Scotia	2.8	Saskatchewan	3.4
New Brunswick	1.3	Alberta	47.1
Quebec	8.7	British Columbia	11.4

For further information, contact:

Canadian Society of Petroleum Geologists
Suite 505
206-7th Avenue South West
Calgary, Alberta T2P 0W7
(403) 264-5610

Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
- College (1981-86)	57	9.4
- University (1981-86)	550	90.6
Trade Vocational Schools (1983/84 only)	0	0.0

Geologists

2112

Job Environment

Geology specialists include geochemists, geophysicists, hydrologists, mineralogists, oceanographers and seismologists, all concerned with the earth's surface and underlying crust.

Most geologists divide their time between some mapping and other fieldwork and a good deal of office work or research. Geologists with the federal or provincial government may gather and analyse information on which the growth of the oil and mineral industries will depend. Geologists in industry may examine oil and mineral occurrences and map the geology of company claims, or plan and supervise general exploration and drilling projects. Many geologists' work involves assessing sites for resource exploration and the construction of highways and bridges. After acquiring experience in government or industry, some geologists work as private consultants for mining or petroleum companies or as executives in mining, exploration or oil.

Educational Background and Skills

The minimum requirement to enter this occupation is an undergraduate degree in geology (which includes such specialized subjects as paleontology, petroleum geology or geochemistry) or a related field of study such as geophysics or mining engineering. In many cases, the completion of a master's or even a doctorate degree is also required. Some jurisdictions require registration. As experience is gained, possibilities occur for promotion into other occupations involving management responsibilities such as consultants, advisors, executives or directors of research.

Nature of Supply

Entry from the formal education sector is the main source of supply. Immigration contributes only marginally to this occupation. The proportion of women within the occupation increased during the 1970s from 3% to 10%. Over the same period (1971-1981) there was a growing proportion of individuals in the 25 to 54 and 55-plus age categories and a smaller proportion in the 15 to 24 age group. A high proportion of geologists work in Alberta (47%) and Ontario (20%).

Market Conditions and Job Prospects

Projections call for above-average employment growth for this occupation, with 850 new job openings and 2600 replacement job opportunities expected over the next eight years.

Employment of geologists is concentrated in mining, petroleum, business services and services incidental to mining. The demand for geologists will depend on the outlook in mining, and in the exploration of petroleum and gas. Since this group of occupations is particularly sensitive to changes in the economy, some geologists may be laid off during recessionary periods in oil and gas exploration.

Current depressed prices for mining commodities and lower world oil prices adversely affect mining and exploration activity. The outlook for geologists should improve as existing supplies of oil diminish and prices climb. Deep sea exploration and research should continue to support the demand for oceanographers. As concerns for environmental protection increases, engineering and environmental geologists will be required to evaluate hazards and recommend solutions to pollution problems.

While openings may be created by the search for new sources of energy, the advent of efficient electronic prospectors and sophisticated aerial detecting devices may reduce the relative need for geologists in the economy.

Nineteen out of 20 geologist jobs are full-time, with peak employment through the warm weather months of the year.

Earnings

The 1984 National Graduate Survey indicated that the salaries of 1982 university graduates working in this occupation averaged $31,217. The Federal Pay Research Bureau reported that junior working-level, or assistant, geologists earned an average annual salary of $35,081 in 1986, compared to $43,182 for working-level geologists and $52,970 for senior geologists. Geologists who moved into the first level of supervision earned $64,044 in 1986.

The Alberta Department of Career Development and Employment indicated that, in 1985, exploration geophysicists earned an estimated annual salary of $44,280, while senior geophysicists earned an estimated annual salary of $57,360.

The following shows 1986-1987 estimated annual salary ranges of geologists and geophysicists employed by provincial governments.

Nova Scotia	$23,989 — $45,299
Saskatchewan	29,652 — 35,952
Ontario	32,449 — 47,340
Quebec	23,706 — 44,610

Physicists

2113

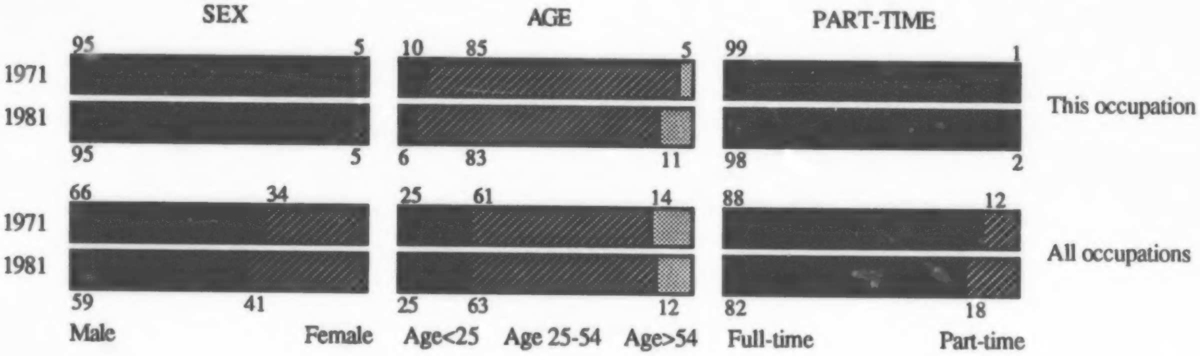
Employment Trends and Projections

	Employment 1981	Employment 1986	Employment 1995	Average Annual Growth Rate (%) 1971-81	Average Annual Growth Rate (%) 1981-86	Average Annual Growth Rate (%) 1987-95
This Occupation	1,300	1,500	1,700	5.7	2.8	1.4
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation 1987-95	This Occupation % of 1987 Jobs	All Occupations % of 1987 Jobs
Net New Job Openings	200	11.3	11.1
Replacement Openings	800	52.4	49.2
Total Job Openings	1,000	63.7	60.3

CENSUS – 1971 and 1981 (%)



1981 CENSUS – Main Industries of Employment (%)

Services (47)
- Business Services (19)
- Education (17)
- Hospitals (9)

Public Administration (31)
- Federal Admin (27)
- Provincial Admin (3)

Manufacturing (12)
- Metal Fabricating (2)
- Misc Manufacturing (2)
- Primary Metals (2)

Geographic Distribution of Employment – 1981 (%)

Newfoundland	0.8	Ontario	56.3
Prince Edward Island		Manitoba	1.6
Nova Scotia	0.8	Saskatchewan	0.8
New Brunswick	3.1	Alberta	6.3
Quebec	24.4	British Columbia	9.8

For further information, contact:

Canadian Association of Physicists
Suite 903
151 Slater Street
Ottawa, Ontario K1P 5H3
(613) 237-3392

Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
- College (1981-86)	0	0.0
- University (1981-86)	72	100.0
Trade Vocational Schools (1983/84 only)	0	0.0

Physicists

2113

Job Environment

There is a great variety among the many specialists in this group. They include condensed matter physicists, industrial and applied physicists, atomic and molecular physicists, geophysicists, particle physicists, medical physicists, mathematical physicists, astronomers, meteorologists and optical physicists. Physicists may develop a product such as a CANDU reactor, or a process such as the scanning of patients using computer-aided tomography or magnetic resonance imaging. Some provide weather-forecasting services, monitor the environment or teach physics. All engage in physics research.

The work of a physicist may be theoretical or experimental, pure or applied, or any combination. Physicists reduce problems to simple terms to analyse them and then determine what should be done experimentally.

Educational Background and Skills

A strong command of mathematics is essential for those training to be physicists. A four-year bachelor's degree in physics or engineering physics is needed to teach or conduct experimental work as a technologist; a postgraduate degree is the usual minimum educational level of many physicists. As a result, most enter the occupation in their late 20s.

Nature of Supply

The major source of new supply is university graduates in physics and engineering physics. Landed immigrants and temporary foreign workers have been significant contributors to the labour supply in the past. Physicists expect to engage in active physics research throughout their careers. There are, however, many career opportunities for physicists with experience, leadership and sound judgement. Possibilities include directors of research laboratories, managers of research departments, directors of science museums, presidents of universities or entrepreneurs.

The representation of women remained constant between 1971 and 1981. The Canadian Association of Physicists encourages women to enter this occupation. The increase in average age reflects the increased duration of formal training now required.

Market Conditions and Job Prospects

Employment growth was about average between 1971 and 1981 and is expected to remain about average into 1995, based on the outlook for services, manufacturing, and public administration. Job openings will occur as individuals move into managerial and administrative occupations. The Canadian Association of Physicists has a membership of 1,700.

Employment of physicists is not strongly affected by economic fluctuations but can be sensitive to government funding of research. Opportunities in the public sector and in colleges and universities may be limited, but should be better in the business and scientific services sector where steady growth is projected.

Earnings

The Pay Research Bureau reported 1986 salaries of physical scientists in industry ranging from $29,124 to $40,220 for junior-level positions. Senior-level physical scientists earned from $50,654 to $76,964 with an average of $64,044. The salary range of research scientists in industry was between $38,219 and $62,227, and the average was $50,520.

Based on the National Graduate Survey, salaries for 1982 university graduates in this occupation averaged $28,163 in 1984.

Meteorologists 2114

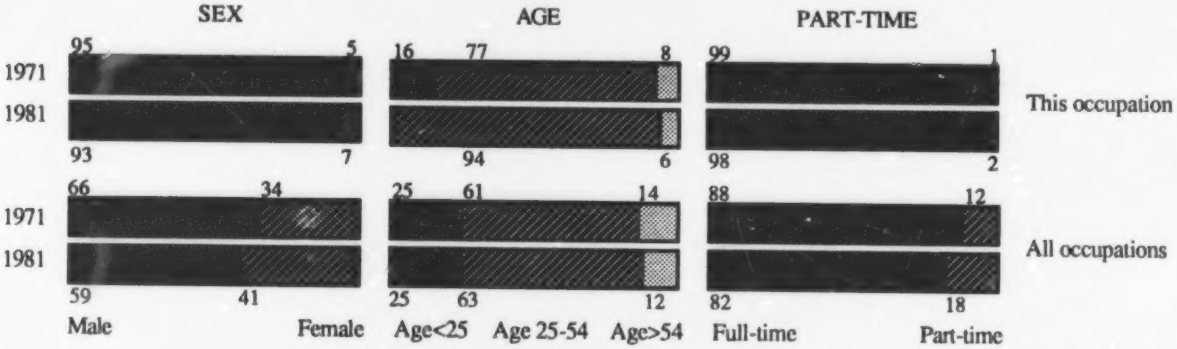
Employment Trends and Projections

	Employment 1981	Employment 1986	Employment 1995	Average Annual Growth Rate (%) 1971-81	Average Annual Growth Rate (%) 1981-86	Average Annual Growth Rate (%) 1987-95
This Occupation	900	900	1,000	1.6	0.5	1.1
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation 1987-95	This Occupation % of 1987 Jobs	All Occupations % of 1987 Jobs
Net New Job Openings	100	8.9	11.1
Replacement Openings	500	51.7	49.2
Total Job Openings	600	60.6	60.3

CENSUS – 1971 and 1981 (%)



1981 CENSUS – Main Industries of Employment (%)

Public Administration (81)
- Federal Admin (66)
- Provincial Admin (14)

Services (12)
- Business Services (12)

Trans + Stor + Comm + Util (3)
- Electric Power (2)

Geographic Distribution of Employment – 1981 (%)

Newfoundland	1.7	Ontario	28.3
Prince Edward Island		Manitoba	8.3
Nova Scotia	7.8	Saskatchewan	0.6
New Brunswick	3.3	Alberta	14.4
Quebec	18.9	British Columbia	15.6

For further information, contact:

Canadian Meteorological and Oceanographic Society
Suite 903
151 Slater Street
Ottawa, Ontario K1P 5H3
(613) 990-0300

Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
- College (1981-86)	0	0.0
- University (1981-86)	68	100.0
Trade Vocational Schools (1983/84 only)	0	0.0

Meteorologists

2114

Job Environment

Meteorologists are involved in the study of climatic conditions for purposes of air pollution control and weather forecasting. Using sophisticated equipment, such as electronic computers, radar and satellites, they observe atmospheric processes and their effect on the earth. Much of this work has direct applications in agriculture, fire prevention and transportation.

Meteorologists also provide weather services, including ice and sea station forecasts, to the public and the aviation industry. In large weather centres, meteorologists work as part of a team of about five meteorologists and technicians. Most of those at the Atmospheric Environment Service work in shifts, providing around-the-clock weather service.

Educational Background and Skills

A bachelor's degree is usually necessary to enter this occupation. Academic programs in meteorology are offered in Nova Scotia, Quebec, Ontario, Alberta and British Columbia. The major employer of meteorologists (the federal government) requires new recruits to complete successfully a nine-month training program. Other qualifications include good interpersonal skills, an aptitude for detailed work, concentration and good judgement.

Nature of Supply

The primary sources of new supply for this occupation are university graduates specializing in meteorology, physics, mathematics, engineering physics or a related field. Promotion into more specialized jobs or administrative positions is possible for meteorologists interested in program management or in pursuing applied research.

Despite a slight increase in the representation of women between 1971 and 1981, the occupation is still dominated by men. The average age (38) remained constant between 1971 and 1981. The fact that almost no meteorologists were under 25 in 1981 reflects the long academic training required to enter the occupation. A higher-than-average proportion of workers are in the 25 to 54 age category.

Market Conditions and Job Prospects

Based on the outlook for the public administration sector, the employment outlook for meteorologists calls for slightly slower growth than the overall average for the labour market. This is in keeping with prevailing trends in the 1970s and early 1980s.

Job openings will occur mainly to replace those meteorologists who retire, die or leave the occupation for various reasons. The relatively young nature of this occupational group suggests that meteorologists move into managerial occupations later in their careers and that the occupation offers opportunities for university graduates. Most graduates have no difficulty finding employment. Demand will increase for those with a high degree of skill and knowledge in their area of expertise.

The majority (over 80%) of meteorologists are employed in federal and provincial administration, while business services account for a minor share of positions. Although job losses are unlikely to occur during a recession, this occupation is, however, vulnerable to government spending decisions. If federal and provincial expenditures continue to decrease in this area, job openings in the public sector will be limited. Increasing use of subcontractors and external services may stimulate job opportunities in business services. Meteorologists' work is mostly full-time and reasonably stable throughout the year.

Public concern for pollution may expand career possibilities for industrial meteorologists. New information systems may also increase the demand for these people; as more detailed and specialized information becomes available, meteorologists are able to advise chemical and agricultural consultants on weather and soil conditions.

Earnings

Based on the 1984 National Graduate Survey, the salaries of meteorologists who graduated from university in 1982 averaged approximately $28,885. The salaries of meteorologists employed by the federal government in 1986 ranged from $16,696 to $24,144; mid-level jobs paid from $34,539 to $43,009 and senior positions from $49,009 to $59,960.

Physical Sciences Technologists and Technicians

2117

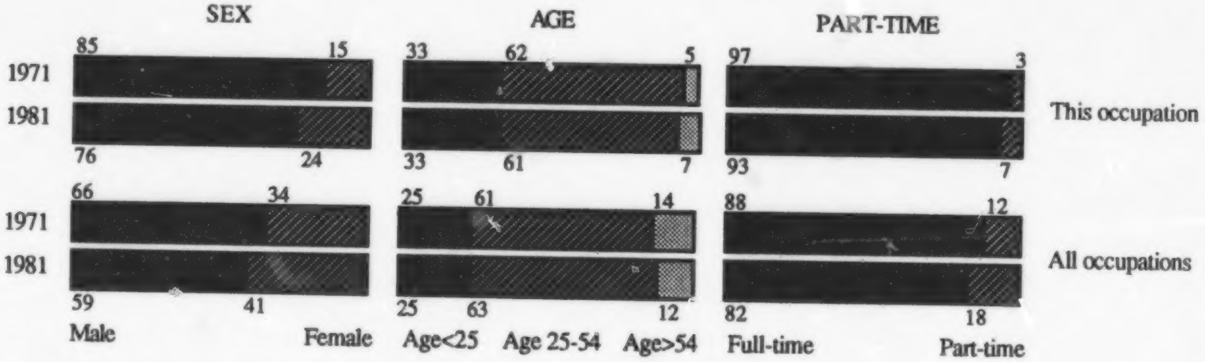
Employment Trends and Projections

	Employment 1981	Employment 1986	Employment 1995	Average Annual Growth Rate (%) 1971-81	Average Annual Growth Rate (%) 1981-86	Average Annual Growth Rate (%) 1987-95
This Occupation	19,100	19,100	21,300	1.1	0.0	1.2
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation 1987-95	This Occupation % of 1987 Jobs	All Occupations % of 1987 Jobs
Net New Job Openings	1,900	9.9	11.1
Replacement Openings	9,900	51.1	49.2
Total Job Openings	11,800	60.9	60.3

CENSUS – 1971 and 1981 (%)



1981 CENSUS – Main Industries of Employment (%)

- Manufacturing (36)
  - Chemicals+Chem Prod (12)
  - Primary Metals (5)
  - Pulp+Paper (4)
- Services (27)
  - Business Services (15)
  - Education (9)
  - Hospitals (2)
- Public Administration (19)
  - Federal Admin (11)
  - Provincial Admin (6)
  - Municipal+Oth Gov't (1)

Geographic Distribution of Employment – 1981 (%)

Newfoundland	1.1	Ontario	40.8
Prince Edward Island	0.1	Manitoba	3.3
Nova Scotia	2.7	Saskatchewan	2.8
New Brunswick	1.2	Alberta	14.6
Quebec	25.4	British Columbia	7.5

Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
- College (1981-86)	381	51.3
- University (1981-86)	314	42.3
Trade Vocational Schools (1983/84 only)	47	6.3

For further information, contact:

Canadian Council of Technicians and Technologists
Suite 807
880 Wellington Street
Ottawa, Ontario K1R 6K7
(613) 238-8123

Canadian Meteorological and Oceanographic Society
Suite 903
151 Slater Street
Ottawa, Ontario K1P 5H3
(613) 990-0300

Physical Sciences Technologists and Technicians 2117

Job Environment

This diverse group includes ballistics technicians, chemical laboratory analysts, food technologists, geophysical technicians, water-purification technicians and others.

Physical science technologists and technicians are frequently employed to assist a team of physical scientists by carrying out specialized tasks, such as performing experiments and testing results. They may also prepare designs to improve operations in their specialty areas.

Chemists, chemical technologists and technicians and chemical engineers often work together using sophisticated equipment to develop or improve manufacturing processes. In process and quality control laboratories, this involves analysing raw materials as well as the final products of the process. Chemical technologists work in the food, paper, metallurgical processing, plastics, petroleum, oil and gas, pharmaceutical, tire and heavy chemical industries.

Geological technologists assist geologists by compiling geological data to determine oil and gas prospects and reserves. After completing the laboratory phase of their work, they write reports and at times, make preliminary recommendations based on their tests.

Educational Background and Skills

The basic requirement for this occupation is usually a college diploma involving two to three years of training in a technical/technological career program. Employers may also provide on-the-job training that lasts from one to 12 months, depending on the specialty and the individual's background. Interest in technical and scientific works, the ability to work well with others and good oral and written abilities are all desirable characteristics.

Nature of Supply

The post-secondary education system is the most important source of new supply to this occupation. At the college level, career programs mostly in chemical technologies, mining technologies and petroleum resources technologies are major avenues to this occupation. University graduates in such areas as chemistry or chemical engineering may also be recruited. With experience and initiative, individuals may move into other positions such as supervisor in a production plant, research project assistant or sales representative.

The number of women in this occupation increased significantly from 15% to 24% during the 1970s. Over the same period, the average age of individuals (32) in this occupational group remained constant. One out of every three persons in the profession is under 25 years of age, which is a higher proportion than in the labour force as a whole.

Market Conditions and Job Prospects

Over the forecast period, some 1,900 new jobs are anticipated in these fields, as employment growth rates are expected to approximate the overall average in the labour market. Business services, chemicals and chemical products, and federal administration are the largest employers of technicians and technologists. Steady employment increases in business services are expected over the forecast period. The continued demand for goods containing chemical products, particularly non-agricultural chemicals, is expected to support employment growth.

As with scientists, demand for technicians and technologists is sensitive to government funds for research projects and the level of private sector activity in research and development projects.

In mining, technological innovations such as robot drills may reduce demand for certain technicians. Biochemistry and biotechnology, on the other hand, should offer better prospects, since these are areas of continuing growth. Automatic analyses and computerization of test records may reduce the work of the technician in some cases, while other complex and technological developments will require more knowledgeable and experienced technicians and technologists.

Earnings

According to the 1984 National Graduate Survey, the salaries of 1982 community college graduates working in these occupations were approximately $20,570.

The University and College Placement Association reported that starting salaries of 1985 chemical engineering technology graduates ranged from $1,791 to $2,018 a month; the average salary was $1,904 a month. The Pay Research Bureau reported that physical science technologists employed by the federal government (classified as engineering and scientific support personnel) earned between $20,049 and $22,229 per annum in 1986-1987. Technical support or full working-level technicians earned annual salaries ranging between $23,515 and $26,262. Those at a senior working level (technical support V) received between $27,378 and $30,635 per annum. The Alberta Treasury reported that in 1985, chemical technologists earned an estimated annual salary of $34,560; geophysical technicians earned $31,800.

Agriculturalists and Related Scientists

2131

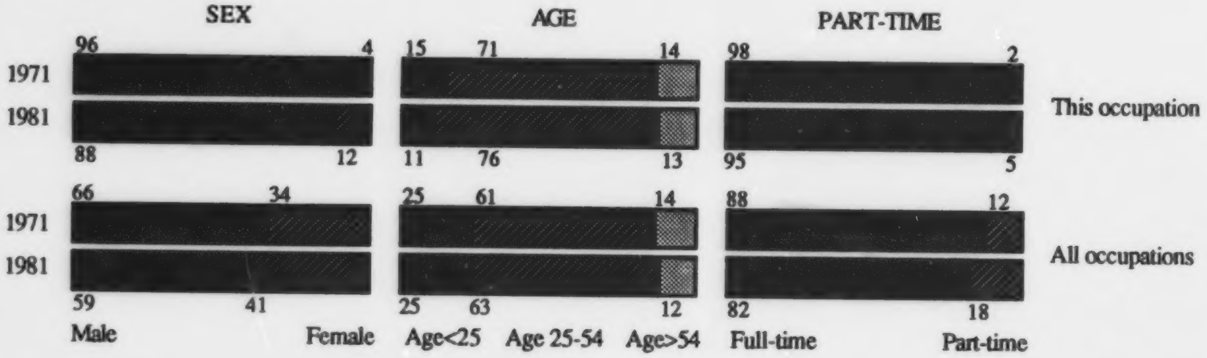
Employment Trends and Projections

	Employment 1981	 1986	 1995	Average Annual Growth Rate (%) 1971-81	 1981-86	 1987-95
This Occupation	6,900	7,000	7,600	3.9	0.4	0.9
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation 1987-95	 % of 1987 Jobs	All Occupations % of 1987 Jobs
Net New Job Openings	500	7.7	11.1
Replacement Openings	3,100	43.8	49.2
Total Job Openings	3,600	51.5	60.3

CENSUS – 1971 and 1981 (%)



1981 CENSUS – Main Industries of Employment (%)

Public Administration (53)
- Provincial Admin (28)
- Federal Admin (20)
- Municipal+Oth Gov't (4)

Forestry (14)
- Forestry (14)

Agriculture (11)
- Agriculture, Paid (7)
- Agriculture, Other (4)

Geographic Distribution of Employment – 1981 (%)

Newfoundland	1.5	Ontario	25.8
Prince Edward Island	1.0	Manitoba	6.7
Nova Scotia	3.0	Saskatchewan	6.6
New Brunswick	3.1	Alberta	12.0
Quebec	24.1	British Columbia	16.4

For further information, contact:

Agricultural Institute of Canada
Suite 907
151 Slater Street
Ottawa, Ontario K1P 5H4
(613) 232-9459

Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
- College (1981-86)	33	18.8
- University (1981-86)	143	81.3
Trade Vocational Schools (1983/84 only)	0	0.0

Agriculturalists and Related Scientists

2131

Job Environment

Agriculturalists study ways to improve livestock and vegetable farming, plant breeding, soil composition, water conservation and farm management. The professional agriculturalist is known as an agrologist, a term which includes a number of more specific occupational groups. Agronomists try to increase crop yield and production by improving growth methods and controlling diseases, pests and weeds. Horticulturalists develop and improve orchard and garden plants by applying basic principles of plant biology. In studying the location, characteristics and composition of soils, soil scientists attempt to improve soil management and conservation and to increase soil productivity. To produce high quality animal products, animal scientists conduct controlled breeding research. Agricultural economists study the economic aspects of agricultural problems and the production and marketing of farm products to improve farm operating methods. Employment in the private sector involves developing, producing and merchandising feed, fertilizer, seed, pesticides and farm machinery.

Educational Background and Skills

For employment in this occupation, individuals usually require either a four-year undergraduate degree in agriculture/plant science or a similar two-year community college diploma.

Nature of Supply

A primary source of new supply to this occupation is the formal post-secondary education system. Other sources include re-entrants from the household sector and, particularly at the doctorate level, immigrants.

Although men continue to form the majority in this occupation, the number of women choosing this career has increased. Most individuals work in Quebec and Ontario, although the highest concentration per capita is in British Columbia.

The average age (38) has stayed fairly stable since 1971. An agriculturalist's career normally lasts between 25 and 30 years, with entry taking place between the ages of 25 and 29.

Market Conditions and Job Prospects

The employment outlook for this cluster of occupations calls for below-average growth, based on the outlook for the public administration sector. This would represent a slight departure from the situation in the 1970s, when employment expanded at an average pace.

The relatively young age structure of these occupations indicates that they offer mostly entry-level positions to new graduates. Openings will occur mainly as replacements are needed for scientists who retire, die or leave the field for other reasons. Some of these will be forthcoming as contracting out increases. Other openings may arise in companies that do business with farmers, such as processing and marketing firms, or banks. Pollution and environmental protection concerns may also create job opportunities for these scientists.

Employment prospects are good for agricultural scientists involved in biotechnical research applications. In *Research Talent in the Natural Sciences and Engineering* (1985), human resource planners forecast future shortages of new researchers at the PhD level, particularly in biotechnology and some fields of forestry. Demand will likely increase for researchers who have a high degree of skill and knowledge, expertise in related disciplines and an understanding of computers.

Earnings

According to the 1984 National Graduate Survey, salaries paid to 1982 university graduates averaged approximately $26,609 in 1984, while community college graduates received $18,917. The University and College Placement Association reported that starting salaries ranged from about $21,700 to $24,580 for BSc graduates in 1985 and increased steadily to a range of $25,500 to $26,700 for individuals who completed post-graduate studies. Salaries for agriculturalists with the federal government in 1986 ranged from $24,788 to $28,666 (entry level); $55,805 to $61,441 (senior level); and $62,619 to $70,763 (managerial level). In business and industry, salaries for well-established agrologists can range into six-figures.

Biologists and Related Scientists

2133

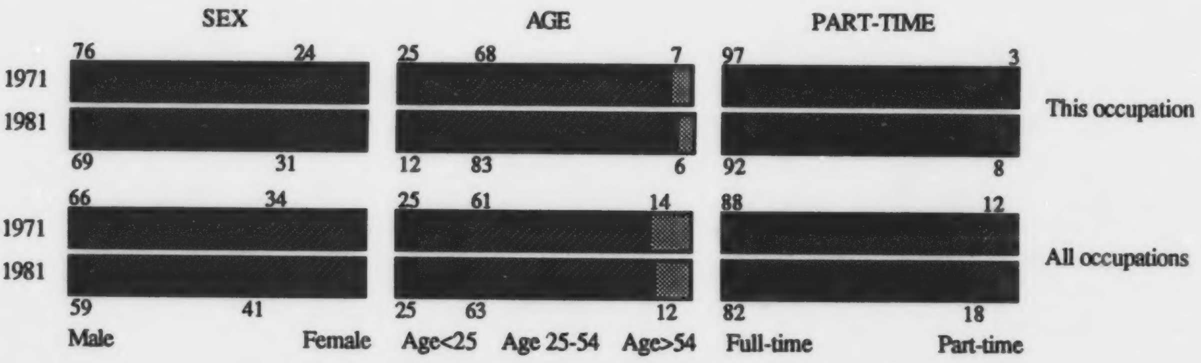
Employment Trends and Projections

	Employment 1981	Employment 1986	Employment 1995	Average Annual Growth Rate (%) 1971-81	Average Annual Growth Rate (%) 1981-86	Average Annual Growth Rate (%) 1987-95
This Occupation	6,800	7,300	8,300	8.7	1.4	1.3
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation 1987-95	This Occupation % of 1987 Jobs	All Occupations % of 1987 Jobs
Net New Job Openings	800	10.9	11.1
Replacement Openings	2,000	26.8	49.2
Total Job Openings	2,800	37.7	60.3

CENSUS – 1971 and 1981 (%)



1981 CENSUS – Main Industries of Employment (%)

Services (45)
- Education (19)
- Business Services (11)
- Hospitals (10)

Public Administration (38)
- Federal Admin (20)
- Provincial Admin (17)

Fishing (7)
- Fishing (7)

Geographic Distribution of Employment – 1981 (%)

Newfoundland	2.5	Ontario	30.9
Prince Edward Island	0.5	Manitoba	5.3
Nova Scotia	5.6	Saskatchewan	2.3
New Brunswick	2.5	Alberta	9.2
Quebec	24.4	British Columbia	16.1

Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
- College (1981-86)	56	17.9
- University (1981-86)	256	82.1
Trade Vocational Schools (1983/84 only)	0	0.0

For further information, contact:

Canadian Society of Medical Biochemists
c/o Ottawa Civic Hospital
1053 Carling Avenue
Ottawa, Ontario K1Y 4E9
(613) 725-4492

Biological Council of Canada
Department of Biology
University of Ottawa
Ottawa, Ontario K1N 6N5
(613) 564-2336

Biologists and Related Scientists

2133

Job Environment

Biologists, who work in zoology, the study of animals, and botany, the study of plants, include anatomists, biochemists, ecologists (or environmental biologists), entomologists, geneticists, limnologists, medical bacteriologists, microbiologists, neurobiologists, pathologists, pharmacologists, physiologists, plant physiologists and zoologists. Theoretical or research biologists usually divide their time between fieldwork, collecting information on living and fossil organisms, and laboratory research. Applied biologists may inspect food and drugs, conduct surveys on wildlife and advise on its management and control. In biotechnological research, specialists combine science and engineering in activities such as the application of plant and animal cells in the production of goods or services.

Educational Background and Skills

An undergraduate degree in either biology, zoology or botany is usually required in this occupation. For some positions, however, the minimum educational requirement is community college graduation in a similar field of study. An undergraduate degree normally takes four years of study, while two years are required to complete a community college diploma.

Nature of Supply

One of the major avenues into this occupation is the post-secondary education system. Individuals from the household sector and immigrants also add to the supply of biologists.

The average age (34) in this occupation has remained fairly stable since 1971. However, the number of biologists between 25 and 54 increased significantly from 1971 to 1981, while the number in the under-25 and the over-54 age groups decreased correspondingly. The average career of a biologist spans 25 years, with entrance occurring between the ages of 24 and 29. Most biologists are men, although the number of women entering this occupation has increased appreciably.

The majority of biologists work in Ontario and Quebec, although the province of British Columbia has the highest concentration of biologists per capita.

Market Conditions and Job Prospects

Employment in this field increased faster than the average for all occupations between 1971 and 1981. Following the 1982 recession, however, employment growth was subdued. Over the forecast period, employment growth rates similar to the average for all occupations are anticipated. Employment demand will depend on growth in the areas of federal and provincial administration, education, business services and hospital services. Overall employment in the services sector tends to be stable; relatively fewer job losses occur in this area during a recession. Positions in the other sectors, however, may be affected by government research expenditures.

Most job openings will occur as biologists retire, die or leave the occupation for other reasons.

The relatively young nature of this group indicates that the occupation offers entry-level positions to recent graduates, while more experienced biologists advance to managerial positions.

Biologists conducting research into new drugs, environmental protection and new plant strains should find jobs, and environmental biologists may be in demand as society seeks solutions to pollution problems. Biotechnological research should offer new opportunities in both the private and public sectors.

The Task Force on Human Resources for Biotechnology has reported a shift toward interdisciplinary programs combining systems engineering with microbiology and other scientific specialties. Graduates with multidisciplinary backgrounds should therefore have little difficulty finding employment. A shortage of biologists with a PhD exists in research.

Earnings

Starting salaries for entry-level jobs in the federal government ranged from $17,354 to $30,983 in 1986. Top positions paid from $40,355 to $48,983.

According to the Federal Pay Research Bureau, 1986 salaries for biological research scientists in private industry ranged from $34,724 to $55,579, the average salary being $46,069.

The National Graduate Survey reported 1984 average annual earnings of $28,038 for 1982 university graduates and $16,720 for community college graduates working in this occupation.

Life Sciences Technologists and Technicians 2135

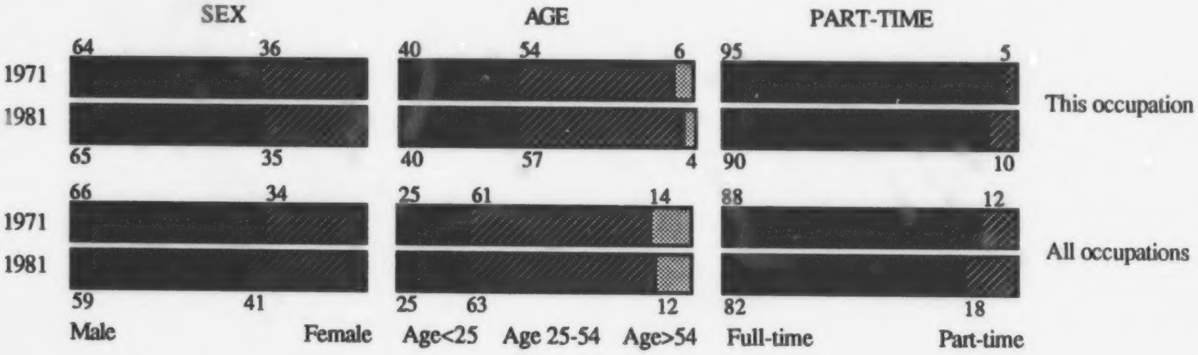
Employment Trends and Projections

	Employment 1981	 1986	 1995	Average Annual Growth Rate (%) 1971-81	 1981-86	 1987-95
This Occupation	9,700	10,100	11,200	1.8	0.8	1.1
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation 1987-95	 % of 1987 Jobs	All Occupations % of 1987 Jobs
Net New Job Openings	1,000	9.3	11.1
Replacement Openings	4,800	47.2	49.2
Total Job Openings	5,800	56.5	60.3

CENSUS – 1971 and 1981 (%)



1981 CENSUS – Main Industries of Employment (%)

Public Administration (38)
- Federal Admin (19)
- Provincial Admin (18)
- Municipal+Oth Gov't (2)

Services (32)
- Education (17)
- Business Services (9)
- Hospitals (3)

Forestry (10)
- Forestry (10)

Geographic Distribution of Employment – 1981 (%)

Newfoundland	2.1	Ontario	28.1
Prince Edward Island	1.4	Manitoba	5.5
Nova Scotia	3.8	Saskatchewan	4.2
New Brunswick	3.3	Alberta	11.6
Quebec	28.7	British Columbia	10.9

Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
- College (1981-86)	234	47.4
- University (1981-86)	232	47.0
Trade Vocational Schools (1983/84 only)	28	5.7

For further information, contact:

Canadian Council of Technicians and Technologists
Suite 807
880 Wellington Street
Ottawa, Ontario K1R 6K7
(613) 238-8123

Life Sciences Technologists and Technicians

2135

Job Environment

This group performs specialized tasks in direct support of life scientists, and includes bacteriology technicians, agricultural technicians, seed analysts, soil technologists, forest technologists, forest technicians and botanical technologists. Their work may range from laboratory experimentation and operation of special test equipment, to preparation of specifications and scientific reports and outdoor field work.

Educational Background and Skills

The above functions usually call for a knowledge of scientific and mathematical principles and laboratory practices supplemented by on-the-job training and practical work experience. The minimum educational requirement in this occupation is graduation from a community college program with a concentration in forestry technologies, resource processing technologies or agriculture. Life sciences technicians are not expected to have the same scientific knowledge as their university counterparts, but they must have a practical working knowledge of the same subjects.

Nature of Supply

The major source of new supply to this occupation is the post-secondary education system. Other significant sources are individuals from the household sector and, to a lesser extent, immigrants. Preliminary data indicate that the number of people leaving these occupations for others will exceed the number of persons entering the field from related ones, suggesting that these are entry-level occupations.

The average age (30) as well as the age structure stayed fairly constant over the 1971 to 1981 period. A typical career lasts 15 years, entry normally occurring between the ages of 20 and 24. Most members of this occupational group are men.

Market Conditions and Job Prospects

Employment is expected to grow at about an average rate into the mid-1990s, based on the employment growth patterns anticipated for the public administration and service sectors. This would be a slight departure from the slightly-below-average employment gains recorded in the past. Nearly 950 new jobs and 4,800 additional replacement openings are anticipated over the forecast interval.

Employment in these occupations may fluctuate according to government spending decisions affecting public administration, services and forestry, and research and development spending in the private sector. Seasonal forces cause employment to peak during the warm months of the year. Nine out of 10 jobs are full-time.

Prospects appear to be the best in the area of quality control in agriculture and fisheries. Other job opportunities should be forthcoming in environmental protection, as technicians and technologists assist in pollution control. Candidates with computer-related, diagnostic skills and multidisciplinary design or development should encounter little difficulty in securing employment.

Earnings

The 1986 prevailing annual salaries for forestry technicians in Ontario ranged from $15,000 for inexperienced workers to $32,000 for experienced technicians.

The National Graduate Survey revealed that 1982 community college graduates working in these occupations received an average annual salary of $18,599 in 1984.

Occupations in Life Sciences

2139

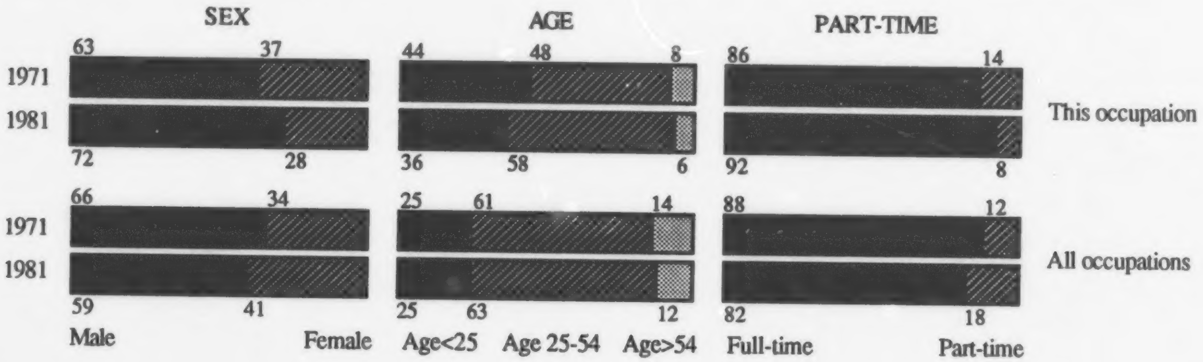
Employment Trends and Projections

	Employment			Average Annual Growth Rate (%)		
	1981	1986	1995	1971-81	1981-86	1987-95
This Occupation	3,200	3,000	3,300	1.0	−0.8	0.8
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation		All Occupations
	1987-95	% of 1987 Jobs	% of 1987 Jobs
Net New Job Openings	200	6.3	11.1
Replacement Openings	1,300	43.4	49.2
Total Job Openings	1,500	49.8	60.3

CENSUS – 1971 and 1981 (%)



1981 CENSUS – Main Industries of Employment (%)

Forestry (47)	Public Administration (29)	Services (8)
- Forestry (47)	- Provincial Admin (17)	- Business Services (4)
	- Federal Admin (10)	- Education (1)
	- Municipal+Oth Gov't (2)	- Misc Services (1)

Geographic Distribution of Employment – 1981 (%)

Newfoundland	1.9	Ontario	23.4
Prince Edward Island	0.5	Manitoba	2.8
Nova Scotia	4.1	Saskatchewan	2.2
New Brunswick	2.5	Alberta	6.6
Quebec	22.5	British Columbia	32.1

Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
- College (1981-86)	60	37.5
- University (1981-86)	80	50.0
Trade Vocational Schools (1983/84 only)	20	12.5

Occupations in Life Sciences

2139

Job Environment

This classification includes ecologists, forest agrologists, forest pathologists and naturalists.

Foresters are responsible for all aspects of forest management. They plan economical ways to cut timber; organize forest replanting; study the effects of light, weather and soil on tree growth; and protect trees from fire, insects, pests and disease. They are often called upon to give advice to people in industry, government and the general public. This may include running educational programs on forest care.

Much of the foresters' time is taken up supervising others, such as work crews building and maintaining public recreational facilities or mapping and surveying a forest area. Other duties include managing timber sales and estimating the amount of standing timber or future growth.

Educational Background and Skills

For employment in this occupation, individuals require a four-year undergraduate degree in forestry or a two-year community college diploma in forestry technologies. Complementary knowledge of geology, engineering, biology and economics is desirable. Practical training lasting one or two years, under the supervision of an experienced forester, is also a requirement.

Nature of Supply

The post-secondary education system is and will continue to be a major source of new supply to this occupation. Other sources of supply include people from the household sector as well as immigrants. Over the projection period, the flow of people from these occupations into others is expected to exceed movement into this field from related ones, which is an indication of the entry-level nature of these jobs.

The majority of people in these occupations work in British Columbia, Ontario and Quebec.

The proportion of women engaged in life sciences occupations dropped significantly between 1971 and 1981. The average age (32) remained stable over the same period. The age structure shifted, however, with a significant increase in the proportion of foresters aged 25 to 54. A typical career in this field spans 15 years, entry normally occurring between the ages of 20 and 24.

Market Conditions and Job Prospects

The employment outlook for this occupational group calls for below-average growth over the next eight years, based on prospects for the forestry and public administration sectors. This projection parallels the slow growth observed during the 1970s. Some recovery in forestry output is anticipated, despite tariffs imposed on Canadian lumber products abroad and export taxes on softwood lumber, but it is expected to be modest. The health of the construction industry is another factor that determines the demand for forestry products and hence employment in these occupations. Most job opportunities will be replacement openings, which are expected to outnumber new jobs by five to one over the forecast period.

Employment is usually full-time, although it fluctuates during the year, peaking during the warm months of the year.

Earnings

Based on the 1984 National Graduate Survey, salaries paid to 1982 university graduates in this occupation averaged $25,065, while community college graduates received $19,115. In 1986-1987, foresters in the federal public service earned from $17,354 to $31,264 (entrance level); $40,036 to $48,239 (middle level); and $52,806 to $60,237 (senior level).

Architects 2141

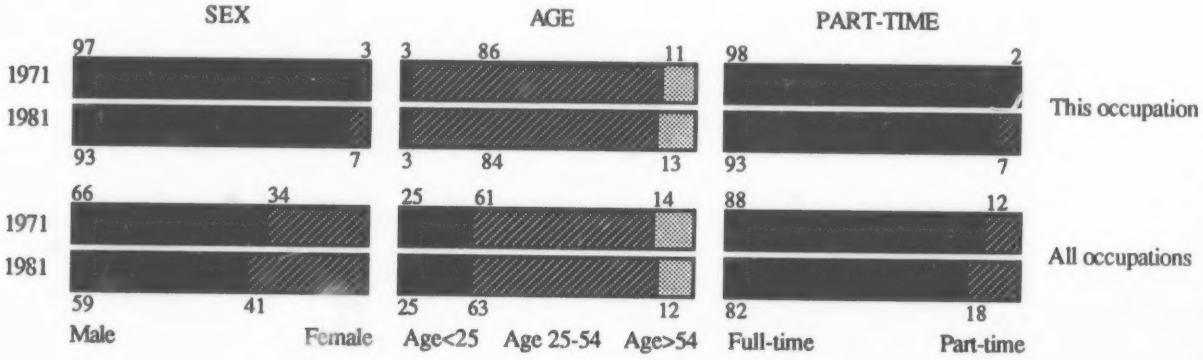
Employment Trends and Projections

	Employment			Average Annual Growth Rate (%)		
	1981	1986	1995	1971-81	1981-86	1987-95
This Occupation	7,400	8,400	10,000	5.8	2.5	1.7
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation 1987-95	This Occupation % of 1987 Jobs	All Occupations % of 1987 Jobs
Net New Job Openings	1,200	14.1	11.1
Replacement Openings	2,700	30.8	49.2
Total Job Openings	3,900	44.9	60.3

CENSUS - 1971 and 1981 (%)



1981 CENSUS - Main Industries of Employment (%)

Services (80)
- Business Services (78)
- Education (1)

Public Administration (11)
- Federal Admin (4)
- Provincial Admin (4)
- Municipal + Oth Gov't (3)

Trans + Stor + Comm + Util (3)
- Telephone + Telegraph (1)

Geographic Distribution of Employment - 1981 (%)

Newfoundland	0.5	Ontario	33.1
Prince Edward Island	0.2	Manitoba	3.4
Nova Scotia	3.0	Saskatchewan	1.5
New Brunswick	1.5	Alberta	12.0
Quebec	27.6	British Columbia	16.9

Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
- College (1981-86)	0	0.0
- University (1981-86)	238	100.0
Trade Vocational Schools (1983/84 only)	0	0.0

For further information, contact:

Royal Architectural Institute of Canada
328 Somerset Street West
Ottawa, Ontario K2P 0J9
(613) 232-7165

The Canadian Society of Landscape Architects
P.O. Box 870, Station B
306 Metcalfe Street
Ottawa, Ontario K1P 5P9
(613) 232-6432

Architects 2141

Job Environment

Architects design residential and non-residential structures, integrating social, economic and environmental factors. Design work is often interrupted by meetings with clients, consultants, planning officials and building commissioners. During the construction period, architects work in collaboration with builders, contractors and construction managers.

Other kinds of architects include landscape architects, who design parks and recreation areas, and naval architects, who design ships and off-shore installations.

Educational Background and Skills

An architect requires design talent, engineering ability, social awareness, business aptitude and a knowledge of legal matters. There are three basic requirements for becoming an architect – education, experience and registration. The first involves completion of either an undergraduate or graduate program in architecture to obtain a professional degree or equivalent or, alternatively, an apprenticeship program. All candidates must then have their academic qualifications assessed by the Canadian Architectural Certification Board. Architects then gain experience over a stipulated period of time, working under the supervision of a registered architect. They obtain registration through acceptance for membership in a provincial licensing association of architects.

Nature of Supply

Most people in this occupation have an undergraduate university degree (77%) with a specialization in architecture. Individuals re-entering the labour force after some period of separation are also a significant source of labour supply; immigrants are a minor source of supply.

Although men have dominated this occupation in the past, the number of women has increased since 1971. The average age (40) has remained fairly constant since 1971. Most individuals enter this occupation between the ages of 30 and 34, and begin to leave between 50 and 54 years of age, for an average career of 20 years.

Market Conditions and Job Prospects

The employment rate for the forecast period is expected to be about the same as the average for all occupations. The demand for architects will depend on the prospects in business services, federal and provincial administration and construction. Activity in the construction industry is expected to improve in the short term, partly because of increased investment in non-residential structures sparked by renewed interest in manufacturing and to the implementation of various municipal infrastructure programs. Architectural work is highly vulnerable to economic conditions; architects may experience job losses during an economic recession.

Technological developments in this field, such as three-dimensional computer drawings, have increased productivity, but have also raised skill requirements and may displace some architects in the long term. Job prospects are more promising for architects familiar with computer-aided design.

Future opportunities for employment may be best with smaller companies because of the increasing popularity of renovations and the maintenance of existing houses.

Earnings

Based on the 1984 National Graduate Survey, salaries paid to 1982 university graduates working in this occupation averaged $21,225.

Starting salaries for architects in the public service ranged from $19,984 to $31,721. Senior positions ranged from $45,825 to $63,929. Regional differences in salaries are significant at the provincial and municipal levels of government: in Nova Scotia, the estimated annual salaries of architects with provincial governments ranged from $24,852 to $38,519; in New Brunswick they ranged from $27,012 to $41,124; in Ontario, from $33,848 to $49,433; and in Quebec, from $23,706 to $44,610. Landscape architects in Alberta earned from $23,776 to $39,000. Salaries for naval architects in New Brunswick ranged from $31,104 to $37,800 in 1985.

In private architectural/engineering firms, or for independent consultants, fees for designing and supervising the construction of a building are based on the building's cost and vary with the size and complexity of the job.

Chemical Engineers

2142

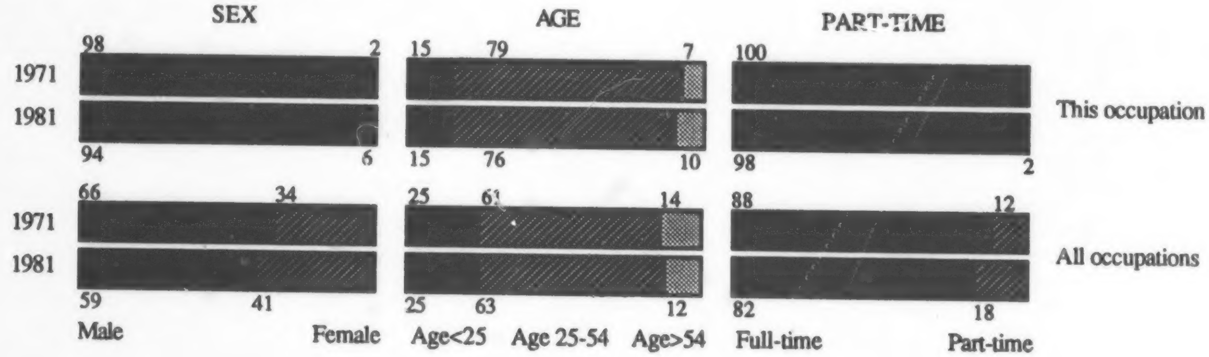
Employment Trends and Projections

	Employment			Average Annual Growth Rate (%)		
	1981	1986	1995	1971-81	1981-86	1987-95
This Occupation	5,500	5,500	6,000	4.9	0.0	1.0
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation		All Occupations
	1987-95	% of 1987 Jobs	% of 1987 Jobs
Net New Job Openings	500	8.4	11.1
Replacement Openings	2,000	35.3	49.2
Total Job Openings	2,400	43.7	60.3

CENSUS – 1971 and 1981 (%)



1981 CENSUS – Main Industries of Employment (%)

Manufacturing (61) - Chemicals + Chem Prod (29) - Petroleum + Coal Prod (11) - Pulp + Paper (5)	Services (17) - Business Services (16)	Mining (11) - Mining-Petroleum + Gas (9)

Geographic Distribution of Employment – 1981 (%)

Newfoundland	0.5	Ontario	47.3
Prince Edward Island	0.2	Manitoba	0.7
Nova Scotia	1.7	Saskatchewan	1.3
New Brunswick	1.4	Alberta	24.1
Quebec	15.4	British Columbia	7.7

For further information, contact:

Association of Professional Engineers of Ontario
Suite 101
1155 Yonge Street
Toronto, Ontario M4W 2Y5
(416) 961-1100

Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
- College (1981-86)	0	0.0
- University (1981-86)	296	100.0
Trade Vocational Schools (1983/84 only)	0	0.0

Chemical Engineers

2142

Job Environment

Chemical engineers include fuels engineers, explosives engineers, polymerization supervisors, environment engineers and plastics engineers. They are concerned with the research, design and development of systems and operations involving chemical processes. Their work extends beyond industrial chemicals into synthetic textiles, foods and more recently into biotechnology.

Chemists' work environments vary from indoor offices, where they work in design and with mathematical computations, to indoor and outdoor factories, where the chemical engineers may be surrounded with machinery, chemicals, materials and equipment. Generally, junior engineers spend more of their time in the field, gradually moving into offices and laboratories as their experience and responsibilities increase. Senior engineers may assume engineering and managerial responsibilities for entire plants or major projects. Chemical engineers normally work a 35- to 40-hour work week but may have to put in long, intensive hours to complete a project within a deadline or to deal with an emergency.

Educational Background and Skills

Most chemical engineers first obtain a professional degree from an engineering school of a recognized university. After completing two years of engineering work, they may then register as a member of any one of the 10 provincial or two territorial professional engineering associations. In several provinces, persons without a recognized degree may qualify for registration by passing exams set by the registering bodies.

Nature of Supply

The majority of people in this occupation are university graduates with a degree (83%) in chemical or mechanical engineering. Other chemical engineers include labour force re-entrants and, to a minor degree, immigrants.

Although in the past, most chemical engineers have been men, the number of women has increased since 1971. About 20% of graduating classes were women, according to a survey by the Canadian Council of Professional Engineers. The majority of chemical engineers work in Ontario (47%), Alberta (24%) and Quebec (15%). The average age increased slightly from 35 in 1971 to 36 in 1981. Most professionals enter this occupation between the ages of 25 and 29 and begin to leave between 35 and 39 years of age, for an average career of 10 to 15 years. People leaving the occupation often enter managerial positions.

Market Conditions and Job Prospects

The employment of chemical engineers was negatively affected by the recession of the early 1980s. During this time, manufacturing, the key employment sector for chemical engineers, was hard hit by the downturn in business conditions. Prior to that, this discipline had been among the fastest growing occupations in the labour market. Despite this stall in employment growth, long-term job prospects in this area are quite good. Current conditions are more favourable than for most occupations; job opportunities are better than average. Unemployment rates are lower than average, and Canada Employment Centres are still reporting a number of hard-to-fill vacancies in this area. Future employment is expected to increase at least as fast as overall employment up to 1995, based on the outlook for manufacturing and business services (consulting). Over this period, about 500 new chemical engineering jobs are expected. In addition, an estimated 10% of chemical engineers will be replaced because of death, retirement and moves into managerial positions. Nearly all chemical engineering jobs are full-time and non-seasonal. They may, however, be affected by swings in the business climate, particularly in the manufacturing sector.

Earnings

The Federal Pay Research Bureau reported an average annual hiring rate in 1986 of $27,732 for graduates with bachelor's degrees in an engineering discipline. The hiring rate for master's degree graduates averaged $29,352. The average hiring rate for chemical engineering graduates was $27,972.

The Ordre des Ingénieurs du Québec indicated an average annual salary of $49,151 in 1986 for full-time salaried engineers (all disciplines) in Quebec.

The National Graduate Survey reported average annual salaries in 1984 of $29,975 for 1982 university graduates employed in this occupation.

Civil Engineers

2143

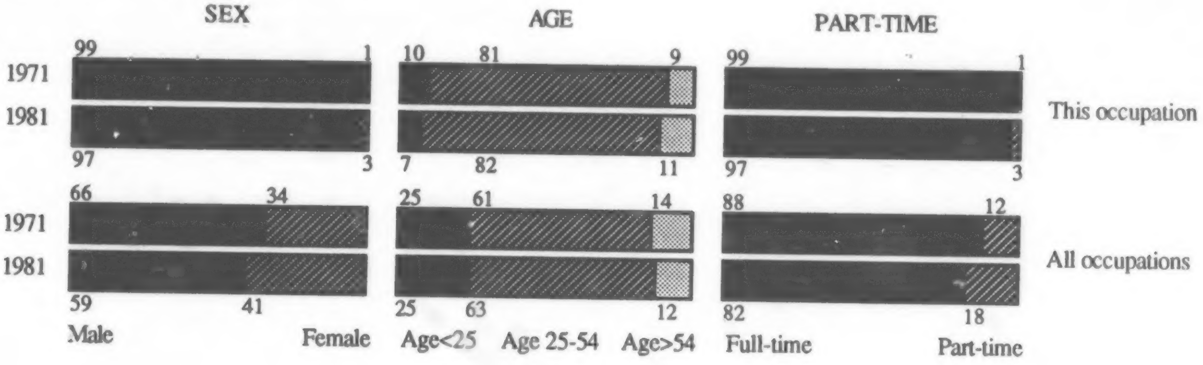
Employment Trends and Projections

	Employment 1981	Employment 1986	Employment 1995	Average Annual Growth Rate (%) 1971-81	Average Annual Growth Rate (%) 1981-86	Average Annual Growth Rate (%) 1987-95
This Occupation	30,900	31,400	36,900	4.1	0.3	1.7
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation 1987-95	This Occupation % of 1987 Jobs	All Occupations % of 1987 Jobs
Net New Job Openings	4,600	14.2	11.1
Replacement Openings	9,800	30.2	49.2
Total Job Openings	14,400	44.4	60.3

CENSUS – 1971 and 1981 (%)



1981 CENSUS – Main Industries of Employment (%)

Services (38) - Business Services (36)	Public Administration (21) - Provincial Admin (8) - Municipal+Oth Gov't (8) - Federal Admin (5)	Construction (15) - Construction (15)

Geographic Distribution of Employment – 1981 (%)

Newfoundland	1.7	Ontario	35.2
Prince Edward Island	0.3	Manitoba	3.9
Nova Scotia	2.9	Saskatchewan	3.2
New Brunswick	2.6	Alberta	18.3
Quebec	17.1	British Columbia	14.1

For further information, contact:

Association of Professional Engineers of Ontario
Suite 101
1155 Yonge Street
Toronto, Ontario M4T 2Y5
(416) 961-1100

Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
- College (1981-86)	100	13.1
- University (1981-86)	665	86.9
Trade Vocational Schools (1983/84 only)	0	0.0

Civil Engineers

2143

Job Environment

Civil engineers include structural design engineers, construction engineers, transportation engineers, road engineers, pollution control engineers and municipal engineers. They design and supervise the construction of a range of structures according to their area of specialization — structural, railway, highway, airport, environmental, irrigation and drainage, water resources or soil engineering. As they gain ability and experience, young civil engineers perform fewer of the routine tasks in design, programming and control and become increasingly involved with more creative work such as project design, costing and management. A 35- to 40-hour work week is normal for civil engineers, but prolonged hours may be necessary during the course of a major project or during emergencies. Civil engineers are often away from their desks and at the work-site.

Educational Background and Skills

Most civil engineers obtain a university engineering degree. After completing two years of engineering work, they may register as a member of one of the 10 provincial or two territorial professional engineering associations. In several provinces, persons without a degree may qualify for registration by passing exams set by the registering bodies of those provinces.

Interpersonal skills are important because in their work, civil engineers come into direct contact with clients, the public, colleagues, management and on-site workers.

Nature of Supply

Most civil engineers have an undergraduate university degree (76%) with a specialization particularly in some area of engineering, such as civil or mechanical engineering. Individuals re-entering the labour force after some period of separation are also a significant source of supply for this occupation; minor sources of supply are immigrants and the military labour force.

Although historically, men have dominated this occupation, the number of women has increased since 1971. A recent survey by the Canadian Council of Professional Engineers showed that 10% of the 1984 graduating class were female. The majority of employed civil engineers are located in Ontario (35%), Alberta (18%), Quebec (17%) and British Columbia (14%). The average age (38) has remained constant since 1971. Most individuals enter the field between the ages of 25 and 29, and begin to leave between 40 and 44, for an average career span of 15 years.

Market Conditions and Job Prospects

Although employment of civil engineers grew faster than average during the 1970s, it decreased following a downturn in 1982 and 1983. Over the next eight years, however, employment is expected to grow at least as fast as the rate for the labour market as a whole. About 14,000 hirings are anticipated, of which 4,000 will be new jobs and 10,000 will be vacancies left by departing personnel. The unemployment rate for this group is low, which indicates that current market conditions are fair. It is estimated that 6% of civil engineers move annually into managerial occupations.

A growing Canadian population and the resulting need for new housing and transportation systems are an indication of good long-term prospects for employment growth. Swings in the business climate affecting the construction industry, however, can interrupt this picture with brief spells of stagnation. Civil engineers work almost exclusively full-time and are employed in engineering consulting firms, in government and in construction firms. Work is generally stable throughout the year.

Earnings

The Federal Pay Research Bureau reported a 1986 average starting salary of $27,732 for bachelor's degree graduates in all engineering disciplines. The rate for master's degree graduates averaged $29,352. The average starting salary for civil engineering graduates was $27,048.

The Ordre des Ingénieurs du Québec indicates an average annual salary of $49,151 in 1986 for full-time salaried engineers (all disciplines) in Quebec.

The National Graduate Survey reported average annual salaries in 1984 of $29,044 for 1982 university graduates who had worked in this occupation two years.

Electrical Engineers 2144

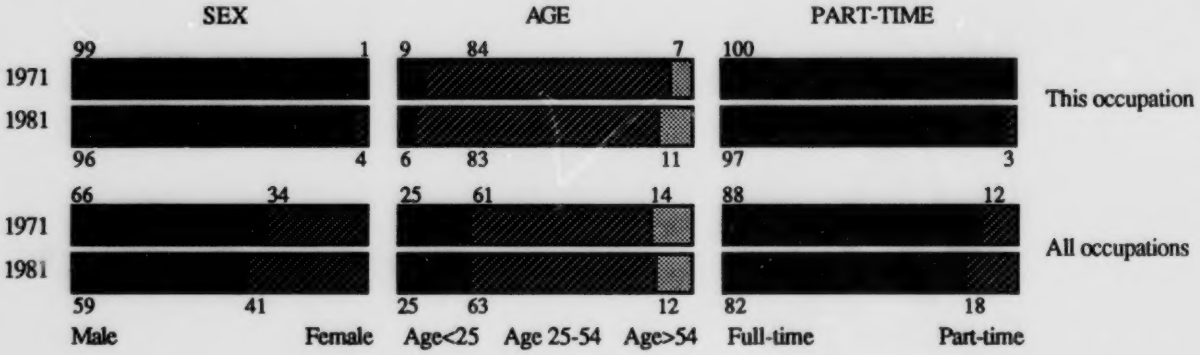
Employment Trends and Projections

	Employment 1981	Employment 1986	Employment 1995	Average Annual Growth Rate (%) 1971-81	Average Annual Growth Rate (%) 1981-86	Average Annual Growth Rate (%) 1987-95
This Occupation	27,300	28,100	30,700	6.0	0.6	0.9
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation 1987-95	This Occupation % of 1987 Jobs	All Occupations % of 1987 Jobs
Net New Job Openings	2,200	7.8	11.1
Replacement Openings	7,400	25.9	49.2
Total Job Openings	9,600	33.8	60.3

CENSUS – 1971 and 1981 (%)



1981 CENSUS – Main Industries of Employment (%)

Trans+Stor+Comm+Util (40)
- Electric Power (20)
- Telephone+Telegraph (17)
- Radio+TV Broadcast (1)

Manufacturing (25)
- Electrical Products (14)
- Machinery (4)
- Misc Manufacturing (1)

Services (21)
- Business Services (18)
- Education (2)

Geographic Distribution of Employment – 1981 (%)

Newfoundland	1.8	Ontario	48.9
Prince Edward Island	0.3	Manitoba	4.1
Nova Scotia	2.9	Saskatchewan	2.5
New Brunswick	1.9	Alberta	9.8
Quebec	18.3	British Columbia	10.0

For further information, contact:

Association of Professional Engineers of Ontario
Suite 101
1155 Yonge Street
Toronto, Ontario M4T 2Y5
(416) 961-1100

Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
– College (1981-86)	153	9.8
– University (1981-86)	1,412	90.2
Trade Vocational Schools (1983/84 only)	0	0.0

Electrical Engineers

2144

Job Environment

Electrical engineers fall into two main categories: electrical power and electronics engineers. The latter is more involved with telecommunications, control systems, computers, navigation systems, electronic circuits, avionics or software design, whereas an engineer specializing in electric power is concerned with power generation, power distribution, power systems, electrical relays, lighting, power line construction and maintenance and rural electrification.

Both kinds of engineer seek cost-effective solutions to design, construction and maintenance problems. They must discuss technical matters with management, confer with colleagues, direct the work of others and participate on multi-disciplinary teams.

The work setting may be both indoors and outdoors. Although the physical demands of their work are light, electrical engineers may be exposed to hazards and therefore must be aware of safety measures. A five-day work week of 37 1/2 to 40 hours is normal.

Educational Background and Skills

Electrical engineers must blend a high degree of technical ability with communication and interpersonal skills. Most electrical engineers obtain a professional degree from an engineering school of a recognized university. When they have completed two years of engineering work, they may register as a member of any one of the 10 provincial or two territorial professional engineering associations. In several provinces, persons without a recognized degree may qualify for registration by passing exams set by the registering bodies of those provinces.

Nature of Supply

The majority of people in the occupation have an undergraduate university degree (68%), with specialization usually in the electrical engineering area. Individuals re-entering the labour force after some period of separation are also a significant source of supply for this occupation; minor sources of supply are immigrants and the military labour force.

Although this occupation historically has been dominated by men, the number of women has increased since 1971. A recent survey by the Canadian Council of Professional Engineers indicated that 5% of the 1984 graduates were women. Geographically, the majority of employed electrical engineers are located in Ontario (49%) and Quebec (18%). The average age (37) has remained fairly constant since 1971, with most individuals entering this occupation between the ages of 25 and 29, and beginning to leave between 50 and 54 years of age, implying an average career span of 25 years.

Market Conditions and Job Prospects

The current market situation for electronics engineers is better than for most engineering disciplines and much better than for most occupations. The growth in telecommunications, fibre optics, micro-processor technology and its applications have all increased the demand for electronics engineers. The need for electrical power engineers is somewhat less than for electronics specialists, but the market situation is still more favourable than for most occupations. Employment growth for these occupations will depend upon economic conditions and growth in electrical utilities.

The economy is expected to generate about 2,200 new electrical engineering jobs over the next eight years, with another 7,400 openings resulting from the replacement of departing personnel. In addition, a major requirement for new engineering graduates will be to replace those who voluntarily move into managerial or related occupations.

Electrical engineering employment is virtually all full-time and stable throughout the year. The main industries of employment are the electric power industry, communication industries, electrical products manufacturing industries, and the engineering and scientific services industry. Electronics engineering jobs tend to be concentrated in large urban areas.

Earnings

The Federal Pay Research Bureau reported an average annual hiring rate in 1986 of $27,732 for graduates with bachelor's degrees in all engineering disciplines. The hiring rate for master's degree graduates averaged $29,352. The average hiring rate for electrical engineering graduates was $26,988.

The Ordre des Ingénieurs du Québec indicates an average annual salary of $49,151 in 1986 for full-time salaried engineers (all disciplines) in Quebec.

The National Graduate survey reported average annual salaries in 1984 of $31,030 for those 1982 university graduates employed in this occupation two years after graduating.

Industrial Engineers 2145
Organization and Methods Analysts 1173

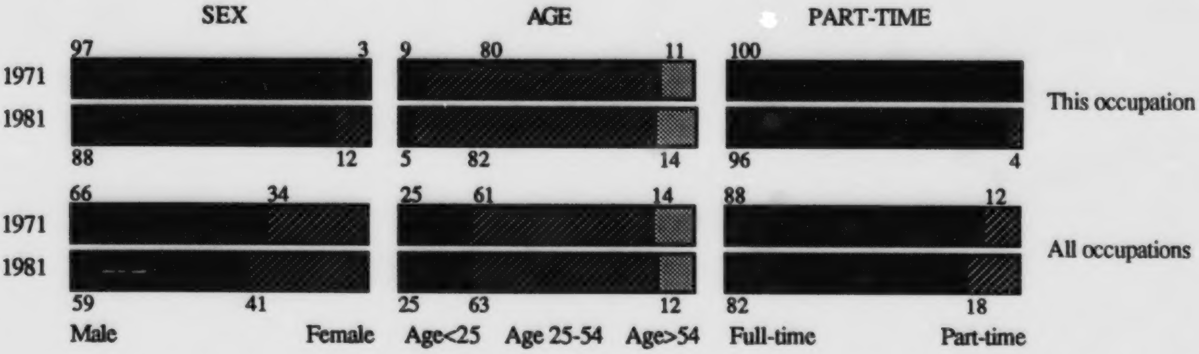
Employment Trends and Projections

	Employment			Average Annual Growth Rate (%)		
	1981	1986	1995	1971-81	1981-86	1987-95
This Occupation	26,600	27,100	30,800	6.1	0.4	1.4
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation		All Occupations
	1987-95	% of 1987 Jobs	% of 1987 Jobs
Net New Job Openings	3,200	11.6	11.1
Replacement Openings	7,800	28.1	49.2
Total Job Openings	11,000	39.6	60.3

CENSUS – 1971 and 1981 (%)



1981 CENSUS – Main Industries of Employment (%)

Manufacturing (44)
- Electrical Products (7)
- Machinery (6)
- Motor Veh+Trls+Parts (4)

Services (21)
- Business Services (18)
- Education (1)

Public Administration (12)
- Federal Admin (6)
- Provincial Admin (5)
- Municipal+Oth Gov't (1)

Geographic Distribution of Employment – 1981 (%)

Newfoundland	0.4	Ontario	53.4
Prince Edward Island		Manitoba	2.6
Nova Scotia	1.6	Saskatchewan	1.6
New Brunswick	1.1	Alberta	8.0
Quebec	23.7	British Columbia	6.6

For further information, contact:

Association of Professional Engineers of Ontario
Suite 101
1155 Yonge Street
Toronto, Ontario M4T 2Y5
(416) 961-1100

Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
– College (1981-86)	210	25.2
– University (1981-86)	622	74.8
Trade Vocational Schools (1983/84 only)	0	0.0

Industrial Engineers 2145
Organization and Methods Analysts 1173

Job Environment

Industrial engineers are concerned with the safe, efficient and economical integration of personnel, plant, machinery, equipment and materials. Among their core activities are methods analysis, quality control, time and motion studies, plant lay-out design, cost control and safety engineering. Some industrial engineering positions call for specialization in one or more of these functions. Industrial engineers work mainly indoors, often on the plant floor. Because they are concerned with efficiency and systems, they often work in non-factory settings as well. The usual work week is five days or 37 1/2 to 40 hours long.

Educational Background and Skills

Most industrial engineers obtain a professional degree from an engineering school of a recognized university. After completing two years of engineering work, they may then register as a member of any one of the 10 provincial or two territorial professional engineering associations. In several provinces, persons without a recognized degree may qualify for registration by passing exams set by the registering bodies of those provinces. Industrial engineers need strong communication and interpersonal skills because they deal with management, direct the work of others and often work on multi-disciplinary teams. Increasingly, those in a manufacturing setting must be well-versed in all aspects of the industry in which they are employed.

Nature of Supply

In this occupation 60% are university graduates with a degree in mechanical engineering, other engineering areas or commerce. Other industrial engineers include labour force re-entrants and, to a minor degree, immigrants. Preliminary data indicate that the movement of people into this occupation from related areas should roughly balance movement out of the occupation.

Although in the past most industrial engineers have been men, the number of women has increased since 1971. About 13% of 1984 graduates were women, according to a survey by the Canadian Council of Professional Engineers. The majority of industrial engineers work in Ontario (53%) and Quebec (24%). The average age (39) has remained fairly constant since 1971. Most individuals enter this occupation between the ages of 25 and 29.

Market Conditions and Job Prospects

Employers are usually reluctant to lay off industrial engineers, because they are key personnel in maintaining efficient operations. Accordingly, these engineers fare reasonably well during difficult times. Current labour market conditions for industrial engineers are better than for most occupations. Employment growth projected to 1995 should be about average, and should create 2,000 additional industrial engineering jobs. Another 8,000 openings are anticipated over the same period to replace departing personnel. Engineers moving into management and related positions (at a rate of 8% per year), will leave a substantial number of openings for graduates.

Nearly all industrial engineering jobs, which are mainly in manufacturing and engineering consulting firms, are full-time. Employment is exceptionally stable throughout the year.

Earnings

The Federal Pay Research Bureau reported an average annual hiring rate in 1986 of $27,732 for graduates with bachelor's degrees in an engineering discipline. The hiring rate for master's degree graduates averaged $29,352. The average hiring rate for industrial engineering graduates was $28,176.

The Ordre des Ingénieurs du Québec indicated an average annual salary of $49,151 in 1986 for full-time salaried engineers (all disciplines) in Quebec.

Agricultural Engineers 2146
Community Planners 2157
Professional Engineers 2159

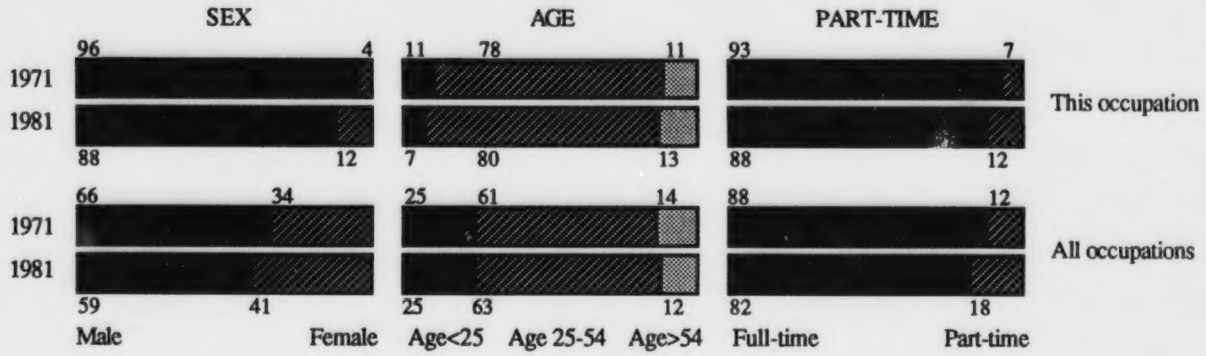
Employment Trends and Projections

	Employment 1981	Employment 1986	Employment 1995	Average Annual Growth Rate (%) 1971-81	Average Annual Growth Rate (%) 1981-86	Average Annual Growth Rate (%) 1987-95
This Occupation	13,300	14,300	16,300	14.2	1.5	1.3
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation 1987-95	This Occupation % of 1987 Jobs	All Occupations % of 1987 Jobs
Net New Job Openings	1,600	11.0	11.1
Replacement Openings	8,200	55.6	49.2
Total Job Openings	9,800	66.6	60.3

CENSUS – 1971 and 1981 (%)



1981 CENSUS – Main Industries of Employment (%)

Services (40)
- Business Services (36)
- Education (1)
- Misc Services (1)

Public Administration (33)
- Municipal+Oth Gov't (15)
- Provincial Admin (12)
- Federal Admin (5)

Manufacturing (10)
- Machinery (1)
- Pulp+Paper (1)
- Electrical Products (1)

Geographic Distribution of Employment – 1981 (%)

Newfoundland	0.8	Ontario	38.0
Prince Edward Island	0.4	Manitoba	3.4
Nova Scotia	2.2	Saskatchewan	2.8
New Brunswick	1.4	Alberta	15.0
Quebec	22.3	British Columbia	13.2

Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
– College (1981-86)	72	11.6
– University (1981-86)	525	84.7
Trade Vocational Schools (1983/84 only)	23	3.7

For further information, contact:

Association of Professional Engineers of Ontario
Suite 101
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Toronto, Ontario M4T 2Y5
(416) 961-1100

Agricultural Engineers 2146
Community Planners 2157
Professional Engineers 2159

Job Environment

This diverse grouping of occupations includes agronomists, irrigation specialists, municipal planners, urban planners, rural planners, ceramic engineers, forest engineers, ordnance engineers, insulation engineers and others. Agricultural engineers, as an example, deal with machinery design, soil and crop testing, irrigation and drainage, culturation and storage techniques, processing and product distribution. Community planners plan services, facilities and the use of residential, commercial, industrial and recreational land in urban, suburban and rural settings. The titles of other engineering specializations reflect either the materials with which engineers work or a type of application of material and technology (for example, optical engineer, factory engineer). Engineers frequently work away from their desk in the field.

Educational Background and Skills

Professional engineers and community planners enter their profession with a post-secondary education and acquired work experience. After completing two years of engineering work, graduates may register with a professional engineering association; in several provinces, persons without a recognized degree may qualify for registration by passing exams set by the registering provincial or territorial bodies. Community planners graduate from a university with a degree in planning; most employers, however, require a master's degree in planning. After a minimum of two years of acceptable planning work, a degree holder may apply for membership in the Canadian Institute of Planners. Specialists in this classification must have good interpersonal skills for effective dealing with senior management, engineer colleagues, the public and on-site workers.

Nature of Supply

The majority of people (69%) in these occupations have an undergraduate university degree either in an engineering area (such as mechanical, civil or electrical), or in forestry, geography, geology or mathematics. Individuals re-entering the labour force after some period of separation are also a significant source of supply; minor sources of supply are immigrants and individuals leaving the military.

Although these occupations have been dominated by men in the past, the number of women has increased since 1971. Most individuals enter these occupations between the ages of 26 and 34 and begin to leave between 60 and 64, for an average career of 30 years.

Market Conditions and Job Prospects

This group of occupations expanded extremely quickly during the 1970s, when growth was fostered by a desire for better municipal planning, greater concern for environmental issues, improved efficiency in agriculture and the search for new, lighter and more durable materials in non-traditional applications. Although employment growth has slowed considerably since then, the job prospects are still better than in the labour force in general. Unemployment rates are far lower than average, and Canada Employment Centres continue to report a number of hard-to-fill vacancies in these areas.

Occupations in this group account for 14,000 jobs, 44% of which are community planner positions. The main industries of employment vary according to the specialty. Most categories are heavily represented in offices of consulting engineers. Otherwise, community planners work in government and consulting firms; agricultural engineers in government, agriculture and food and beverage manufacturing; and forestry engineers in forestry and wood products and paper manufacturing. Most jobs are full-time, although part-time opportunities represented 12% of the total in 1981.

Earnings

The National Graduate Survey reported 1984 average annual earnings of $21,503 and $17,216 respectively for 1982 university graduates and community college graduates working in this occupational area.

Community planners with five years of experience earn about $30,000 annually.

Mechanical Engineers 2147

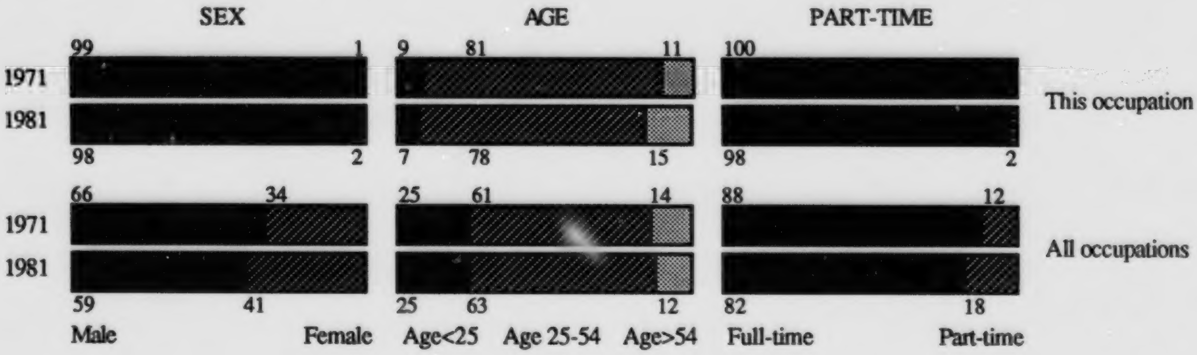
Employment Trends and Projections

	Employment 1981	Employment 1986	Employment 1995	Average Annual Growth Rate (%) 1971-81	Average Annual Growth Rate (%) 1981-86	Average Annual Growth Rate (%) 1987-95
This Occupation	19,200	18,900	21,800	4.1	−0.3	1.5
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation 1987-95	This Occupation % of 1987 Jobs	All Occupations % of 1987 Jobs
Net New Job Openings	2,500	12.8	11.1
Replacement Openings	7,500	38.7	49.2
Total Job Openings	10,000	51.5	60.3

CENSUS – 1971 and 1981 (%)



1981 CENSUS – Main Industries of Employment (%)

Manufacturing (46)
- Machinery (10)
- Motor Veh+Trls+Parts (7)
- Metal Fabricating (5)

Services (28)
- Business Services (25)
- Education (1)

Trans+Stor+Comm+Util (8)
- Electric Power (4)

Geographic Distribution of Employment – 1981 (%)

Newfoundland	0.6	Ontario	54.4
Prince Edward Island	0.2	Manitoba	3.0
Nova Scotia	1.6	Saskatchewan	1.4
New Brunswick	1.3	Alberta	10.6
Quebec	16.5	British Columbia	10.2

Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
– College (1981-86)	61	12.1
– University (1981-86)	443	87.9
Trade Vocational Schools (1983/84 only)	0	0.0

For further information, contact:

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Mechanical Engineers

2147

Job Environment

Mechanical engineers apply specialized research to the design, production and maintenance of tools and machines and to the generation and use of energy and mechanical power. They include a variety of specialists, such as automotive engineers, plant and machine designers, heating systems design engineers, refrigeration engineers, heat transfer/thermodynamics specialists and hydraulics engineers. In their work, mechanical engineers direct others, advise senior management, consult with colleagues on technical matters and deal with outside agencies, customers or suppliers. They work indoors, both in the office and on the plant floor, close to machinery and equipment. The physical demands of their work are light. These professionals work a 35- to 40-hour week.

Educational Background and Skills

Most mechanical engineers obtain a professional degree from an engineering school of a recognized university. After completing two years of engineering work, they then register as a member of any of the 10 provincial or two territorial professional engineering associations. In several provinces, persons lacking a recognized degree may qualify for registration by passing exams set by the registering bodies. Mechanical engineers require good interpersonal skills and a broad knowledge of the industry of their specialization, including a knowledge of such areas as marketing and sales.

Nature of Supply

The majority of people in this occupation are university graduates (74%) with a degree in mechanical engineering or in another engineering área, such as civil engineering. Other sources of supply include labour force re-entrants and, to a minor degree, immigrants and military personnel. Preliminary data indicate that the flow of people into this occupation from related ones should roughly balance movement out of the occupation.

Although in the past most mechanical engineers have been men, the number of women has increased since 1971. According to a survey by the Canadian Council of Professional Engineers, 6% of 1984 graduates were women. The majority of mechanical engineers work in Ontario (54%), Quebec (17%), Alberta (11%) and British Columbia (10%). The average age (39) has remained fairly constant since 1971. Most individuals enter this occupation between the ages of 25 and 29, and begin to leave between 45 and 49 years of age, for an average career of 20 years.

Market Conditions and Job Prospects

About 2,400 new mechanical engineering jobs are anticipated over the coming eight years. These would represent an improvement over employment opportunities in the early 1980s, but would not signal a full return to the rapid growth rates of the 1970s. Nevertheless, the market situation is much better in mechanical engineering than in most occupations. Future employment growth is expected to be the same as the overall occupational average. In addition to the new jobs, 7,500 openings will occur because of departing personnel. According to the Canadian Council of Professional Engineers, additional mechanical engineers will be needed to replace those who move into managerial and related occupations.

A balanced market situation is forecasted over the medium term, although some specialties may experience a small shortage or surplus. The largest number of openings will occur in plant engineering. Vacancies in heating, ventilation and air-conditioning design will vary with new plant and building construction.

Employment for mechanical engineers is full-time and steady year-round. The diversity of this grouping tends to make it less susceptible to swings in business conditions, although individual specialties may depend on a few key sectors.

Earnings

The Federal Pay Research Bureau reported an average annual hiring rate in 1986 of $27,732 for bachelor's degree graduates in all engineering disciplines. The hiring rate for master's degree graduates averaged $29,352. The average hiring rate for mechanical engineering graduates was $27,516. The Ordre des Ingénieurs du Québec indicated an average annual salary of $49,151 in 1986 for full-time salaried engineers (all disciplines) in Quebec. The National Graduate Survey reported average annual salaries in 1984 of $27,236 for 1982 university graduates employed in this occupation.

Metallurgical Engineers 2151

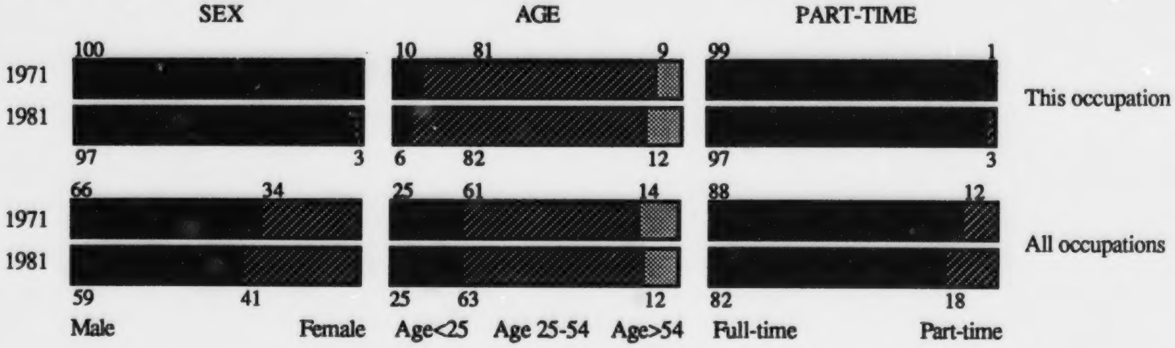
Employment Trends and Projections

	Employment 1981	Employment 1986	Employment 1995	Average Annual Growth Rate (%) 1971-81	Average Annual Growth Rate (%) 1981-86	Average Annual Growth Rate (%) 1987-95
This Occupation	1,800	1,600	1,800	7.4	−2.8	1.6
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation 1987-95	This Occupation % of 1987 Jobs	All Occupations % of 1987 Jobs
Net New Job Openings	200	13.5	11.1
Replacement Openings	600	38.3	49.2
Total Job Openings	800	51.7	60.3

CENSUS – 1971 and 1981 (%)



1981 CENSUS – Main Industries of Employment (%)

Manufacturing (62)
- Primary Metals (44)
- Metal Fabricating (9)
- Aircraft + Parts (2)

Services (17)
- Business Services (15)
- Education (1)

Mining (11)
- Mining-Metal Mining (7)
- Mining-Petroleum + Gas (1)
- Serv Ind to Mining (1)

Geographic Distribution of Employment – 1981 (%)

Newfoundland		Ontario	49.9
Prince Edward Island		Manitoba	1.8
Nova Scotia	1.8	Saskatchewan	1.5
New Brunswick	1.2	Alberta	5.4
Quebec	33.7	British Columbia	6.9

For further information, contact:

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Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
– College (1981-86)	11	15.1
– University (1981-86)	62	84.9
Trade Vocational Schools (1983/84 only)	0	0.0

Metallurgical Engineers

2151

Job Environment

Specialists in this classification include extractive metallurgists, materials engineers, smelting engineers and process metallurgists. Their duties logically follow those of the mining engineer: designing plants or processes for extracting metals such as iron, copper, nickel and aluminum from other substances in ore that has been mined. Metallurgical engineers are also involved in refining these metals and in converting them into final products, such as beams, pipes or plates. They may also develop methods for casting, forging, rolling and shaping metals. Since the work is very technical in nature, much time is spent researching, designing, computing and designing products, methods and applications related to metallurgy. Overall time is divided between a desk, meetings and the actual work site.

Metallurgical engineers are usually in positions where they direct the work of others, confer with colleagues and senior management, and participate on multi-disciplinary teams. Managerial responsibilities generally increase as experience and knowledge are acquired.

Educational Background and Skills

Most metallurgical engineers obtain a professional degree from an engineering school of a recognized university. After completing two years of engineering work, they then register as a member of any of the 10 provincial or two territorial professional engineering associations. In several provinces, persons lacking a recognized degree may qualify for registration by passing exams set by the registering bodies.

Nature of Supply

The majority of people in this occupation are university graduates (74%) with a degree in some area of engineering, such as chemical or mechanical engineering. Labour force re-entrants are also a significant source of supply for this occupation; immigrants are a minor source.

Although in the past most metallurgical/materials engineers have been men, since 1971, the number of women has increased. According to the Canadian Council of Professional Engineers, 12% of 1984 graduates were women. The majority of metallurgical engineers (five of every six) work in Ontario (50%) and Quebec (34%). The average age increased slightly from 37 in 1971 to 39 in 1981. Most individuals enter this occupation between the ages of 30 and 34, and begin to leave between 40 and 44 years of age, for an average career of 10 years.

Market Conditions and Job Prospects

Employment among metallurgical engineers increased faster than average during the 1970s but has since slowed down. Employment opportunities are currently fair and may remain so up to 1995. Unemployment rates are very low for metallurgical engineers, and Canada Employment Centres continue to report a modest number of hard-to-fill vacancies. Over the next eight years, the economy is expected to generate about 200 new jobs, and 600 additional hirings will occur to replace departing workers. This is in keeping with the anticipated rate of employment growth for the labour force in general. The Canadian Council of Professional Engineers estimates that personnel moving into managerial positions will create the majority of replacement openings.

In this occupation employment is mostly full-time and non-seasonal. It may, however, be affected by the business climate in primary metal manufacturing and mining, two key sectors of employment for this group.

Earnings

The Federal Pay Research Bureau reported an average annual hiring rate in 1986 of $27,732 for graduates with bachelor's degrees in an engineering discipline. The hiring rate for master's degree graduates averaged $29,352. The average hiring rate for metallurgical engineering graduates was $29,808. The Ordre des Ingénieurs du Québec indicated an average annual salary of $49,151 in 1986 for full-time salaried engineers (all disciplines) in Quebec. The 1984 National Graduate Survey reported average annual salaries of $31,304 for 1982 university graduates employed in this occupation.

Mining Engineers 2153

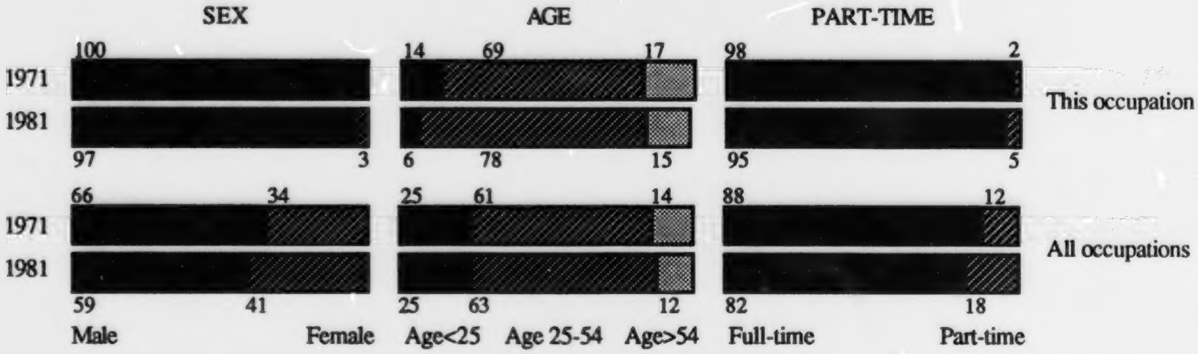
Employment Trends and Projections

	Employment			Average Annual Growth Rate (%)		
	1981	1986	1995	1971-81	1981-86	1987-95
This Occupation	3,300	3,000	3,500	5.4	−1.7	1.5
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation		All Occupations
	1987-95	% of 1987 Jobs	% of 1987 Jobs
Net New Job Openings	400	12.8	11.1
Replacement Openings	1,400	44.0	49.2
Total Job Openings	1,800	56.8	60.3

CENSUS – 1971 and 1981 (%)



1981 CENSUS – Main Industries of Employment (%)

Mining (63)
- Mining-Metal Mining (37)
- Serv Ind to Mining (7)
- Mining-Non-Metal (7)

Services (23)
- Business Services (22)

Manufacturing (7)
- Primary Metals (5)

Geographic Distribution of Employment – 1981 (%)

Newfoundland	2.8	Ontario	32.5
Prince Edward Island		Manitoba	5.0
Nova Scotia	1.9	Saskatchewan	4.4
New Brunswick	1.1	Alberta	16.9
Quebec	14.8	British Columbia	17.9

Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
– College (1981-86)	6	3.4
– University (1981-86)	168	96.6
Trade Vocational Schools (1983/84 only)	0	0.0

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Mining Engineers

2153

Job Environment

Specialists in this group include design engineers, mine exploration engineers, mine production engineers, mineral engineers and safety engineers. Their activities involve surveying mineral deposits and ore bodies to determine whether mining is commercially viable, deciding on the best method of mining, planning and designing appropriate mining facilities, overseeing the construction of mine shafts and choosing the extraction processes. All decisions must be made with a view to efficiency, economy and safety.

Mining engineers deal regularly with management, direct the work of others and confer with fellow engineers and technicians. They work mainly in an office environment, but can also be found outdoors or in a mine shaft. Positions in this occupation are often in isolated communities.

Educational Background and Skills

Most mining engineers obtain a degree from the engineering school of a recognized university. After completing two years of engineering work, they then register as a member of one of the 10 provincial or two territorial professional engineering associations. In several provinces, persons lacking a recognized degree may qualify for registration by passing exams set by the registering bodies.

Nature of Supply

The majority of people entering this occupation have an undergraduate degree (86%) either in an engineering area (such as civil, mechanical or chemical engineering) or in geology. Individuals re-entering the labour force after some period of separation are also a significant source of supply. Immigrants are a minor source. Preliminary data indicate that the flow of people into this occupation from related ones should roughly balance the movement out of the field.

Although most mining engineers have been men in the past, the number of women has been increasing since 1971. The majority of mining engineers work in Ontario (32%), British Columbia (18%), Alberta (17%) and Quebec (15%). The average age increased slightly from 39 in 1971 to 40 in 1981. Individuals enter this occupation between the ages of 25 and 29, and about 9% of the work force move into management positions annually, according to the Canadian Council of Professional Engineers.

Market Conditions and Job Prospects

Employment in this field grew briskly during the 1970s, but fell during the early 1980s because of the 1981-1982 economic recession and depressed world metal prices. Partly offsetting the decline has been an expansion in gold mining operations. The outlook for the coming eight years is optimistic, although a return to the rapid growth of the 1970s is not envisioned. Over this period, employment growth rates will be about the same as the overall occupational average. An increase in metal prices would improve growth prospects.

Most job vacancies will be created by people who leave the labour force, move into management or retire. Excluding moves into management, about 1,400 replacement openings are expected in the next eight years. Over the same time period, 400 new jobs are anticipated. While most opportunities are in small communities, openings in major urban centres are the most eagerly sought. Specialties of growing importance in this field are rock mechanics and mine planning.

Employment is usually full-time and stable year-round, although activity in the mining industry can be affected by business conditions, such as metal prices and demand for material.

Earnings

The Federal Pay Research Bureau reported an average annual starting salary in 1986 of $27,732 for graduates with a bachelor's degree in an engineering discipline. The hiring rate for master's degree graduates averaged $29,352. The Ordre des Ingénieurs du Québec indicated an average annual salary of $49,151 in 1986 for full-time salaried engineers (all disciplines) in Quebec. The 1984 National Graduate Survey reported average annual salaries of $31,362 for 1982 university graduates employed in this occupation.

Petroleum Engineers 2154

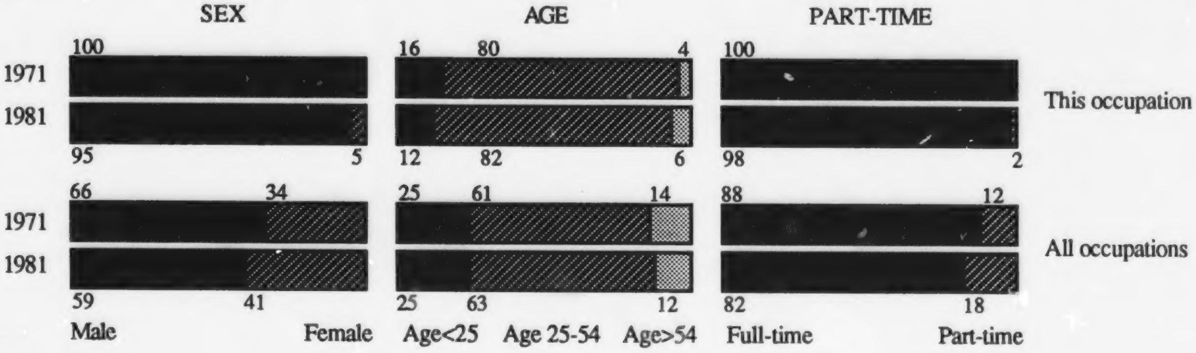
Employment Trends and Projections

	Employment 1981	Employment 1986	Employment 1995	Average Annual Growth Rate (%) 1971-81	Average Annual Growth Rate (%) 1981-86	Average Annual Growth Rate (%) 1987-95
This Occupation	4,000	4,400	4,900	12.0	1.6	1.3
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation 1987-95	This Occupation % of 1987 Jobs	All Occupations % of 1987 Jobs
Net New Job Openings	500	11.0	11.1
Replacement Openings	700	15.0	49.2
Total Job Openings	1,100	25.9	60.3

CENSUS – 1971 and 1981 (%)



1981 CENSUS – Main Industries of Employment (%)

Mining (62)
- Mining-Petroleum + Gas (52)
- Serv Ind to Mining (10)

Services (17)
- Business Services (17)

Manufacturing (9)
- Petroleum + Coal Prod (9)

Geographic Distribution of Employment – 1981 (%)

Newfoundland	0.6	Ontario	6.5
Prince Edward Island		Manitoba	0.2
Nova Scotia	0.7	Saskatchewan	1.9
New Brunswick	0.2	Alberta	82.5
Quebec	4.0	British Columbia	3.4

For further information, contact:

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Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
– College (1981-86)	9	3.2
– University (1981-86)	270	96.8
Trade Vocational Schools (1983/84 only)	0	0.0

Petroleum Engineers

2154

Job Environment

Petroleum engineers are concerned with locating reservoirs that contain oil or gas, determining the quantity and nature of the fluids contained and deciding on profitable strategies for removing them. This involves them in all aspects of the petroleum industry, from exploration and recovery to refining and distribution. Their work is technical and scientific, involving extensive calculations, cost estimates, design work, scheduling and supervision. Different kinds of petroleum engineers include drilling engineers, reservoir engineers, oil production engineers and pipeline engineers. Early in their careers, these engineers spend much of their time at the drill-site or processing plant, possibly in an isolated area. Later, as they gain knowledge and experience, they work less in the field and more at the head office completing more responsible tasks.

Educational Background and Skills

Most petroleum engineers obtain a professional degree from an engineering school of a recognized university. After completing two years of engineering work, they then register as a member of one of the 10 provincial or two territorial professional engineering associations. In several provinces, persons lacking a recognized degree may qualify for registration by passing exams set by the registering bodies. Petroleum engineers require well-developed communication skills, since they often confer with senior management, engineering colleagues and the public.

Nature of Supply

The majority of people in the occupation are university graduates (78%) with a degree in some area of engineering, usually chemical or mechanical engineering. Labour force re-entrants are also a significant source of supply for this occupation; immigrants are a minor source. Preliminary data indicate that the flow of people into this occupation from related ones should roughly balance movement out of the occupation.

Although most petroleum engineers are men, the number of women has increased since 1971. The majority of petroleum engineers work in Alberta (83%). The average age (35) has remained fairly constant since 1971. Most individuals enter this occupation between the ages of 25 and 29, and begin, to leave between 40 and 45 years of age, for an average career of 15 years. Most petroleum engineers leaving the occupation move into management positions. The rate of departure is estimated to be 10% per year, according to the Canadian Council of Professional Engineers.

Market Conditions and Job Prospects

During the energy crisis of the 1970s, employment growth in this occupation was explosive. In the early 1980s, however, the recession, high interest rates and lower oil prices combined to restrain employment. A return to faster-than-average growth rates is foreseen for the period up to 1995; growth should match the overall occupational average. This will create 500 new positions; 700 additional hirings are expected to result from personnel dropping out of the labour force. Despite the current slack in domestic oil exploration activity, unemployment among petroleum engineers is very low.

Nearly all petroleum engineer jobs are full-time. Employment is not affected by seasonal variations, but can be susceptible to factors influencing oil and gas exploration and drilling, such as exploration and financing costs, and international oil prices.

Earnings

The Federal Pay Research Bureau reported an average annual hiring rate in 1986 of $27,732 for graduates with a bachelor's degree in an engineering discipline. The hiring rate for master's degree graduates averaged $29,352. The Ordre des Ingénieurs du Québec indicated an average annual salary of $49,151 in 1986 for full-time salaried engineers in Quebec. The 1984 National Graduate Survey reported average annual salaries of $33,832 for 1982 university graduates employed in this occupation.

Aerospace Engineers 2155

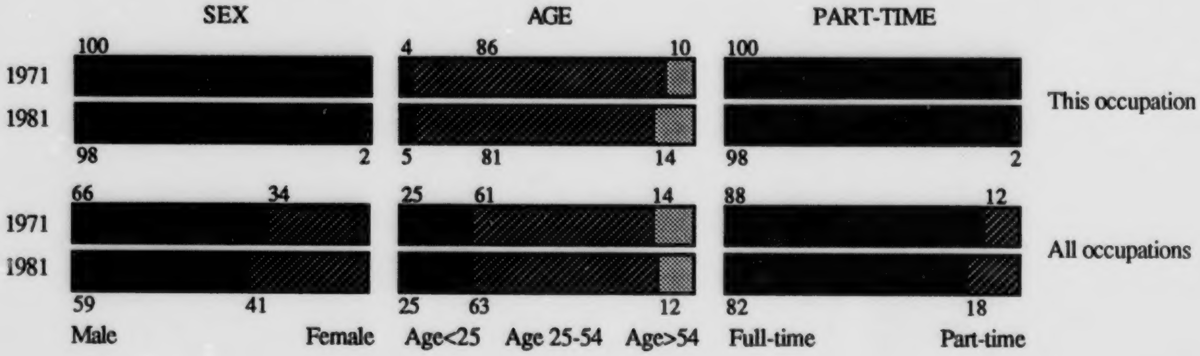
Employment Trends and Projections

	Employment 1981	Employment 1986	Employment 1995	Average Annual Growth Rate (%) 1971-81	Average Annual Growth Rate (%) 1981-86	Average Annual Growth Rate (%) 1987-95
This Occupation	2,600	2,500	3,000	5.2	-0.5	1.9
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation 1987-95	This Occupation % of 1987 Jobs	All Occupations % of 1987 Jobs
Net New Job Openings	400	16.6	11.1
Replacement Openings	1,000	40.7	49.2
Total Job Openings	1,500	57.3	60.3

CENSUS – 1971 and 1981 (%)



1981 CENSUS – Main Industries of Employment (%)

Manufacturing (52)
- Aircraft+Parts (48)
- Electrical Products (3)

Trans+Stor+Comm+Util (27)
- Air Transport (26)

Services (10)
- Business Services (9)

Geographic Distribution of Employment – 1981 (%)

Newfoundland	1.0	Ontario	42.1
Prince Edward Island	0.2	Manitoba	4.4
Nova Scotia	2.2	Saskatchewan	1.4
New Brunswick	1.8	Alberta	5.6
Quebec	32.7	British Columbia	7.7

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Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
– College (1981-86)	22	23.9
– University (1981-86)	70	76.1
Trade Vocational Schools (1983/84 only)	0	0.0

Aerospace Engineers

2155

Job Environment

Aerospace engineers research, design, produce and test aircraft, missiles and spacecraft. Already in a highly specialized area of engineering, they may further specialize in structural design, navigational control, guidance systems, instrumentation, flight analysis or stress analysis and testing. They may also specialize according to the type of product on which they work (for example, passenger planes, military aircraft, satellites, helicopters). Work settings include design stations, most of which are computerized, research and testing laboratories, and the production floor. A select number of aerospace engineers may work at launch sites or sometimes even in flight. Inexperienced aerospace engineers are given technical research or design assignments. As their careers advance, they begin to direct other workers and perhaps eventually an entire department or facility.

Educational Background and Skills

Most aerospace engineers obtain a professional degree from an engineering school of a recognized university. After completing two years of engineering work, they then register as a member of any of the 10 provincial or two territorial professional engineering associations. In several provinces, persons lacking a recognized degree may qualify for registration by passing exams set by the registering bodies. Communication with upper management, fellow engineers and co-workers in this occupation calls for strong interpersonal and communication skills.

Nature of Supply

The majority of people in this occupation are university graduates (64%) with a degree in mechanical engineering. Other aerospace engineers include labour force re-entrants and, to a minor degree, immigrants and military personnel.

Although most aerospace engineers have been men in the past, the number of women has increased since 1971. The majority of aerospace engineers work in Ontario (42%) and Quebec (33%). The average age (40) has remained fairly constant since 1971. Most individuals enter this occupation between the ages of 25 and 29, and begin to leave between 55 and 59 years of age, for an average career of 30 years. This is longer than the career span for most types of engineers, as movement into management occupations is less pronounced among aerospace engineers than in other engineering disciplines.

Market Conditions and Job Prospects

Employment in this occupation tends to fluctuate more than in other types of engineering, due to the "boom or bust" cycles which are characteristic of the industry. On average, though, the outlook for aerospace engineers is relatively good. Unemployment rates for aerospace engineers are very low, and anticipated growth rates are well above-average for the 1987 to 1995 period. About 400 new jobs are expected over the next eight years, of which a number will be attributable to the recovery of previously lost jobs. In addition, 1,000 aerospace engineers will be required to replace departing personnel.

Nearly all aerospace engineering jobs are full-time and unaffected by seasonal variation. Most of the employment opportunities are in aircraft and parts manufacturing, the air transportation industry and engineering consulting firms.

Earnings

The Federal Pay Research Bureau reported an average annual hiring rate in 1986 of $27,732 for graduates with a batchelor's degree in an engineering discipline. The hiring rate for master's degree graduates averaged $29,352. The Ordre des Ingénieurs du Québec indicated an average salary of $49,151 in 1986 for full-time salaried engineers (all disciplines) in Quebec. The 1984 National Graduate Survey reported average annual salaries of $30,885 for 1982 university graduates employed in this occupation.

Surveyors 2161

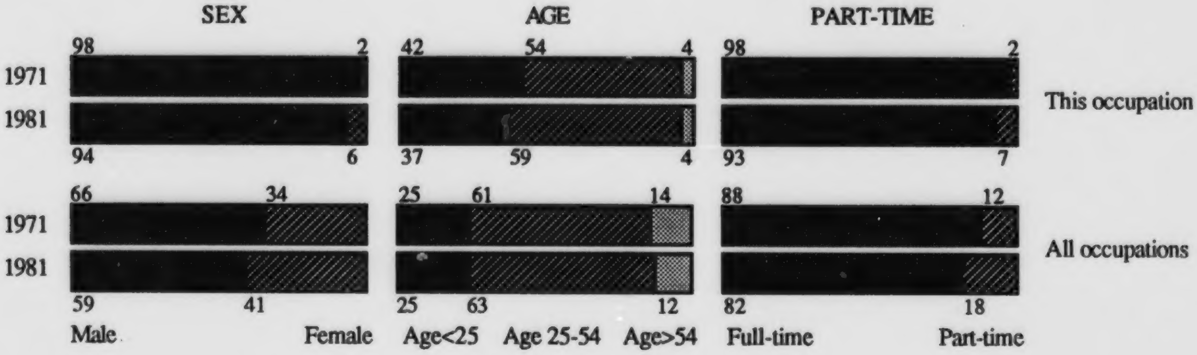
Employment Trends and Projections

	Employment 1981	Employment 1986	Employment 1995	Average Annual Growth Rate (%) 1971-81	Average Annual Growth Rate (%) 1981-86	Average Annual Growth Rate (%) 1987-95
This Occupation	16,200	16,400	19,600	5.1	0.3	1.8
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation 1987-95	This Occupation % of 1987 Jobs	All Occupations % of 1987 Jobs
Net New Job Openings	2,600	15.0	11.1
Replacement Openings	8,600	50.4	49.2
Total Job Openings	11,100	65.4	60.3

CENSUS – 1971 and 1981 (%)



1981 CENSUS – Main Industries of Employment (%)

Services (38)
- Business Services (37)

Public Administration (24)
- Provincial Admin (11)
- Municipal+Oth Gov't (9)
- Federal Admin (5)

Construction (18)
- Construction (18)

Geographic Distribution of Employment – 1981 (%)

Newfoundland	2.1	Ontario	26.1
Prince Edward Island	0.7	Manitoba	4.4
Nova Scotia	4.6	Saskatchewan	4.1
New Brunswick	2.7	Alberta	16.7
Quebec	23.1	British Columbia	14.8

For further information, contact:

Canadian Construction Association
85 Albert St., 2nd Floor
Ottawa, Ontario K1P 6A4
(613) 236-9455

Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
– College (1981-86)	191	39.8
– University (1981-86)	260	54.2
Trade Vocational Schools (1983/84 only)	29	6.0

Surveyors

2161

Job Environment

Included in this category are land surveyors, marine surveyors, pipe-line surveyors, port surveyors, topographical surveyors and hydrographers. Their work is to determine and define boundaries, specific locations and areas, elevations, contours and waters for map-making, construction, mining or other purposes. They use various types of measuring devices and instruments, such as accelerometers, gyroscopes, transits and levels.

Surveying work is painstaking and detailed, but technological innovations have revolutionized surveying work and simplified the job. Computers now help refine measurements taken in the field, draft maps, further environmental planning and perform impact analyses. Electronic distance measuring devices and navigation satellites permit accurate study of the earth (geodetic surveying). Computer-aided design systems are used to integrate information from aerial photographs with electronically stored draft and print maps.

Educational Background and Skills

Although requirements differ across the country, graduation from a university surveying program is the most common qualification. The majority of university graduates have degrees in areas such as geodesy, land surveys or civil engineering; those who graduate from a community college have usually specialized in surveying or engineering. Surveyors must be licensed under provincial statute, since their work involves land boundaries and related statutes.

Nature of Supply

In addition to university and community college graduates, individuals re-entering the labour force after some period of separation are a significant source of supply for this occupation; immigration is a minor source.

Although the surveying field has been dominated by men in the past, the number of women has increased noticeably since 1971. The majority of employed surveyors are in Ontario (26%), Quebec (23%), Alberta (17%) and British Columbia (15%). The average age (30) has remained fairly constant since 1971. The majority of individuals enter this occupation between the ages of 20 and 24, and begin to leave between 30 and 34, for an average career span of 10 years. Many of those leaving the occupation move into supervisory, managerial or administrative jobs.

Market Conditions and Job Prospects

The employment outlook for surveyors calls for growth rates similar to the average for all occupations, based on the outlook for services, public administration and construction. This represents a mild departure from the 1970s situation, when employment grew slightly faster than average.

Employment in these occupations may be moderately susceptible to change in economic conditions. Owing to the outdoor nature of the work, seasonal forces cause employment peaks during the warm months of the year. The incidence of part-time work has increased but remains well below average.

Aerial surveyors are particularly affected by technological developments. Sophistication of equipment in other areas may further affect the demand for this professional group.

Earnings

Based on the 1984 National Graduate Survey, salaries paid to 1982 university graduates in this occupation averaged $22,670, while graduates from community colleges received $18,568 on average.

According to the Pay Research Bureau, 1986-1987 salaries for land surveyors employed by the federal government ranged from $24,845 to $35,180 at the entry level, and from $42,219 to $48,789 at the senior level.

Draughting Occupations 2163

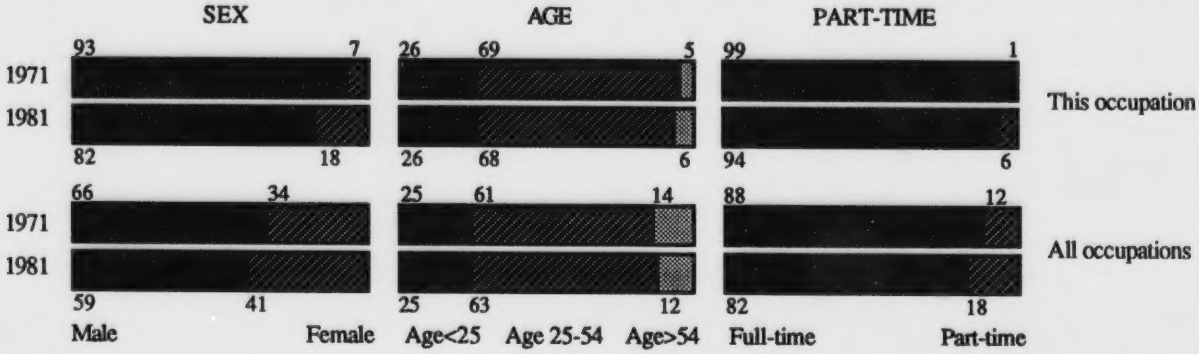
Employment Trends and Projections

	Employment 1981	Employment 1986	Employment 1995	Average Annual Growth Rate (%) 1971-81	Average Annual Growth Rate (%) 1981-86	Average Annual Growth Rate (%) 1987-95
This Occupation	41,900	43,000	49,900	4.6	0.5	1.5
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation 1987-95	This Occupation % of 1987 Jobs	All Occupations % of 1987 Jobs
Net New Job Openings	5,600	12.6	11.1
Replacement Openings	15,400	34.8	49.2
Total Job Openings	21,000	47.4	60.3

CENSUS – 1971 and 1981 (%)



1981 CENSUS – Main Industries of Employment (%)

Services (41)	Manufacturing (25)	Public Administration (12)
– Business Services (38)	– Metal Fabricating (5)	– Provincial Admin (4)
– Education (1)	– Machinery (5)	– Federal Admin (4)
	– Electrical Products (4)	– Municipal+Oth Gov't (4)

Geographic Distribution of Employment – 1981 (%)

Newfoundland	0.7	Ontario	40.1
Prince Edward Island	0.2	Manitoba	3.2
Nova Scotia	2.2	Saskatchewan	2.4
New Brunswick	1.2	Alberta	14.7
Quebec	22.5	British Columbia	12.6

Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
– College (1981-86)	539	56.9
– University (1981-86)	197	20.8
Trade Vocational Schools (1983/84 only)	212	22.4

Draughting Occupations

2163

Job Environment

Specializations within this field include aeronautical, architectural, cartographic, electronic and mechanical draughting.

Trained in the principles of technical drawing, a draughtsperson develops working drawings or plans from sketches prepared by designers, engineers or architects for builders to employ in the construction process. A wide range of instruments are used, including protractors, compasses, squares, triangles, dividers and engineering handbooks.

Educational Background and Skills

A great deal of patience, discipline and concentration is needed in draughting. Although draughtspersons generally work on a large staff ranging from two to three hundred, they should also enjoy working independently. A high degree of three-dimensional visualization ability is needed as well as strong mathematical skills and a knowledge of computers, since correct measurements and calculations are important for developing detailed technical drawings. Eight to 10 years of draughting experience are necessary for an individual to be classified as a senior draughtsperson.

Nature of Supply

Most draughtspersons enter this profession with a post-secondary education. After gaining experience and becoming skilled in the basics, the draughtsperson will begin to specialize. Most draughtspersons who hold a university degree initially study in specialty areas, particularly architecture and engineering. Those who graduate from a community college studied architectural design/draughting technology or engineering, while trade/vocational graduates studied mainly draughting and architectural design/draughting technology.

Individuals re-entering the labour force are also a significant source of supply, as well as immigrants and individuals from the military. Although historically this occupation has been dominated by men, the number of women has increased since 1971. The average age (33) has remained fairly constant since 1971.

Market Conditions and Job Prospects

Over the 1971-1981 period, employment growth in this occupation was about the same as the average of all occupations and should increase at about the average rate during the forecast period.

The occupational age profile indicates that a lot of new graduates are admitted to this profession; some older workers advance into managerial occupations, while a small number continue working beyond the usual retirement age of 65.

More draughtspersons are employed in business services than in any other service industry, while the three levels of public administration account for a little over 10% of employment. Employment demand will depend on the outlook in these industries. Since this occupation is concentrated in the cyclically sensitive goods-producing and construction sectors, there will be job losses during recessionary periods.

The concept and design of new products have been changed dramatically by computer-aided design (CAD). State-of-the-art systems provide three-dimensional visualization and facilitate the conceptualization of complex shapes and machine assemblies. The trend is towards integration of automated machine-tools/computer-assisted manufacturing and design (CAD/CAM) and management function. These changes have eliminated many repetitive tasks and may place more demand on the draughtsperson for better design skills, more sophisticated graphics and accuracy of designs. New applications of CAD are increasing opportunities in such areas as landscape, interior and fashion design.

A Technical Service Council report states that many companies prefer to retrain experienced draughtspersons in CAD rather than to hire inexperienced community college graduates with CAD training. The supply and demand for technical illustrators for defence-related projects are subject to wide shifts that coincide with orders in the aircraft industry.

Earnings

The Pay Research Bureau reports the following annual salary levels for draughtspersons at level 1 (works under supervision preparing simple diagrams, drawings) and level 7 (supervises draughting units of four to 10 employees, where complex work is involved).

Draughtsperson 1:	Average Annual Salary	Salary Range
Atlantic	$17,095	–
Quebec	18,808	$14,340 – 24,201
Ontario	20,087	15,420 – 24,889
Prairies	20,910	16,271 – 25,319
British Columbia	19,056	17,730 – 21,388
Draughtsperson 7:		
Atlantic	–	–
Quebec	$47,398	$42,216 – 52,195
Ontario	43,951	40,360 – 47,252
Prairies	48,492	40,200 – 58,044
British Columbia	–	–

Architectural Technologists and Technicians 2164
Engineering Technologists and Technicians 2165

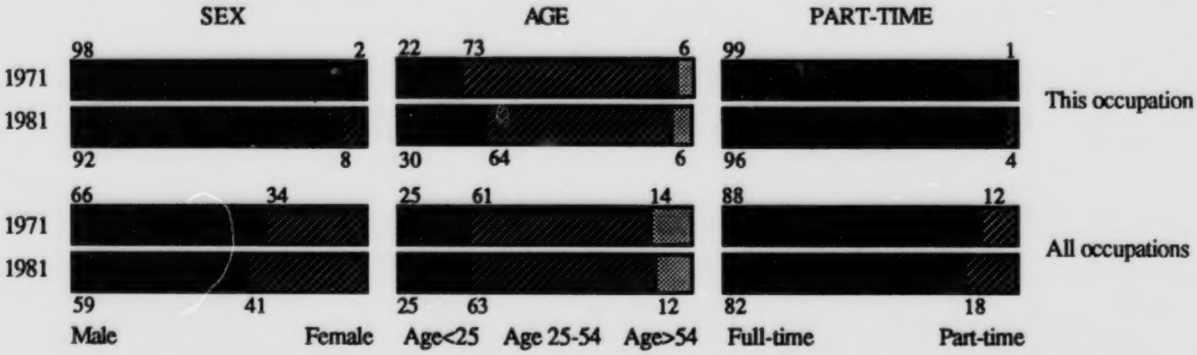
Employment Trends and Projections

	Employment 1981	Employment 1986	Employment 1995	Average Annual Growth Rate (%) 1971-81	Average Annual Growth Rate (%) 1981-86	Average Annual Growth Rate (%) 1987-95
This Occupation	48,700	49,600	55,600	7.3	0.4	1.2
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation 1987-95	This Occupation % of 1987 Jobs	All Occupations % of 1987 Jobs
Net New Job Openings	5,200	10.3	11.1
Replacement Openings	14,600	28.9	49.2
Total Job Openings	19,800	39.2	60.3

CENSUS – 1971 and 1981 (%)



1981 CENSUS – Main Industries of Employment (%)

Manufacturing (35)
- Electrical Products (10)
- Machinery (4)
- Primary Metals (3)

Services (20)
- Business Services (15)
- Education (3)

Trans+Stor+Comm+Util (17)
- Electric Power (8)
- Telephone+Telegraph (4)
- Air Transport (1)

Geographic Distribution of Employment – 1981 (%)

Newfoundland	1.3	Ontario	41.9
Prince Edward Island	0.3	Manitoba	3.6
Nova Scotia	2.5	Saskatchewan	2.3
New Brunswick	1.6	Alberta	12.2
Quebec	25.0	British Columbia	9.2

For further information, contact:

Canadian Council of Technicians and Technologists
Suite 807
880 Wellington Street
Ottawa, Ontario K1R 6K7
(613) 238-8123

Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
- College (1981-86)	991	63.1
- University (1981-86)	359	22.9
Trade Vocational Schools (1983/84 only)	221	14.1

Architectural Technologists and Technicians 2164
Engineering Technologists and Technicians 2165

Job Environment

Specialists in this category, including electrical technicians, electronic technicians and technologists, quality control technicians, architectural technologists and mechanical engineering technologists, may assist engineers and architects. Engineering technicians usually specialize in a particular area, such as installation, operation and maintenance, quality control or production planning. Specific responsibilities may include maintaining power-generation and distribution equipment; testing electronic, electrical and mechanical equipment; and designing and sketching buildings, products or machinery. The tasks of engineering technologists are similar but normally more complex and responsible. Both technologists and technicians assemble prototypes or models, operate pilot plants and troubleshoot equipment. Other duties include the supervision and inspection of construction projects, and problem-solving.

Architectural technologists and technicians apply their training in construction methods and materials to the inspection and supervision of construction projects. This involves the development of detailed working drawings from architecturally prepared designs.

Educational Background and Skills

Most architectural and engineering technologists and technicians enter their profession with a post-secondary degree. After two or three years of work experience, depending on the provincial requirements, they may obtain certification.

Nature of Supply

The majority of people in these occupations with a university degree specialize in electrical and mechanical engineering; graduates of community colleges are mainly specialized in electrical and electronic engineering technologies or in architectural design/drafting technology, while trade/vocational program graduates are specialists in electrical and electronic engineering technologies. Graduates who start out in these occupations may later advance into related administrative and supervisory positions.

Individuals re-entering the labour force are also a significant source of labour supply to this occupation; minor sources are immigrants and military personnel.

Although men have held most of the positions in these occupations in the past, the number of women has increased since 1971. The average age declined slightly from 34 in 1971 to 33 in 1981. The majority of individuals enter these occupations between the ages of 20 and 24, and begin to leave between 45 and 49 years of age, for an average career span of 25 years.

Market Conditions and Job Prospects

Employment in these occupations grew faster than the average for all occupations from 1971 to 1981. During the 1982 recession, it declined sharply but has since rebounded to pre-recession levels. The outlook for the 1986 to 1995 period calls for average employment growth.

According to the 1981 census, manufacturing and business services were the main industries of employment. New employment opportunities will depend on future development in these areas and is therefore expected to be subdued. Employment is also vulnerable to the business cycle.

Technology has wielded a double-edged sword in these occupations. On the one hand, innovations such as computer-aided design have enhanced productivity and efficiency; on the other, automation threatens to make some technicians redundant.

Earnings

A 1986 salary survey completed by the Ontario Association of Engineering Technologists and Technicians (OACETT) on members residing in Ontario and across Canada showed the following annual salaries by discipline for full members.

Discipline	Prevalent Salary Range	
	Technician	Technologist
Mineral Resources and Metallurgy	$22,200 — $41,000	$28,500 — $51,500
Mechanical	25,000 — 44,000	27,000 — 50,000
Industrial	25,000 — 45,468	27,000 — 47,500
Electrical	23,800 — 44,700	27,500 — 52,728
Civil	22,500 — 43,187	24,500 — 46,000
Chemical	20,000 — 46,000	24,897 — 58,000

Mathematicians, Statisticians and Actuaries

2181

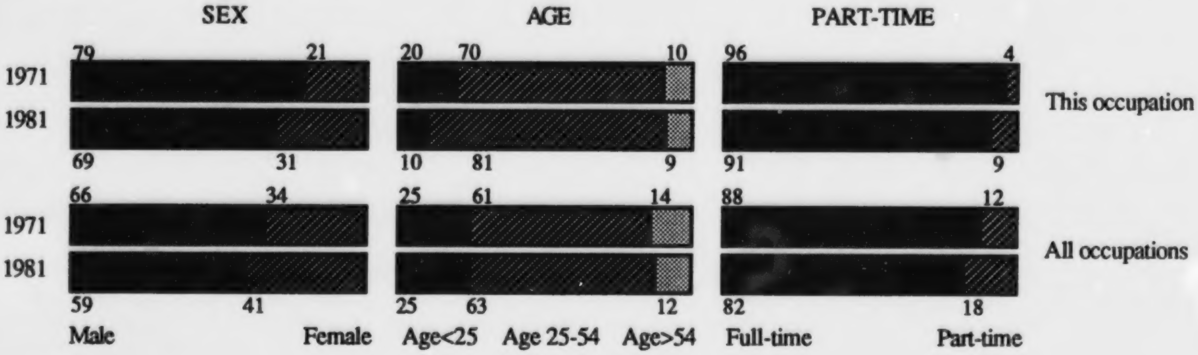
Employment Trends and Projections

	Employment			Average Annual Growth Rate (%)		
	1981	1986	1995	1971-81	1981-86	1987-95
This Occupation	5,500	5,800	6,500	4.3	1.1	1.2
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation		All Occupations
	1987-95	% of 1987 Jobs	% of 1987 Jobs
Net New Job Openings	600	10.1	11.1
Replacement Openings	1,800	30.8	49.2
Total Job Openings	2,400	40.8	60.3

CENSUS – 1971 and 1981 (%)



1981 CENSUS – Main Industries of Employment (%)

Public Administration (30)
- Federal Admin (18)
- Provincial Admin (10)
- Municipal+Oth Gov't (2)

Services (23)
- Business Services (14)
- Education (5)
- Hospitals (1)

Fin+Ins+Real Estate (20)
- Fin+Ins+Real Estate (20)

Geographic Distribution of Employment – 1981 (%)

Newfoundland	1.4	Ontario	50.7
Prince Edward Island	0.4	Manitoba	5.5
Nova Scotia	1.8	Saskatchewan	1.7
New Brunswick	1.6	Alberta	5.4
Quebec	23.8	British Columbia	6.4

For further information, contact:

Canadian Institute of Actuaries
Suite 405
360 Albert Street
Ottawa, Ontario K1R 7X7
(613) 236-8196

Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
- College (1981-86)	19	8.1
- University (1981-86)	215	91.9
Trade Vocational Schools (1983/84 only)	0	0.0

Mathematicians, Statisticians and Actuaries

2181

Job Environment

This occupational category includes actuaries, demographers, statisticians, sampling experts and survey statisticians.

Mathematicians work in either pure or applied fields: pure mathematicians are concerned with mathematics as an abstract science and usually teach in universities after obtaining a PhD in mathematics. Applied mathematicians work in various areas in industry and business such as computers, business management, laboratory research and product design. In statistics, a special branch of mathematics, work involves the collection, arrangement, analysis, interpretation and presentation of numerical data.

Actuaries are mainly employed in the insurance industry. They design insurance and pension plans based on such statistical data as rates of sickness, injury, mortality, unemployment, accident, disability and retirement. They set premium rates and policy contract provisions for each type of insurance, according to social and demographic statistics.

Educational Background and Skills

Most mathematicians, statisticians and actuaries enter the profession with an undergraduate university degree in mathematics, commerce, geography or economics. Other qualifications, such as a post-graduate university degree or actuarial exams may be required as well, depending on the different industries or employers.

Nature of Supply

Besides those entering these occupations from the undergraduate level with specializations in mathematics, commerce, geography or economics, individuals re-entering the labour force after some period of separation are a significant source of supply for this occupation; immigrants are a minor source of supply.

Although these occupations historically have been predominantly held by men, the number of women has increased significantly since 1971. Geographically, the majority of employed mathematicians, statisticians and actuaries are located in Ontario (51%) and Quebec (24%). The average age (36) has remained fairly constant since 1971, with the majority of individuals entering these occupations between the ages of 25 and 29, and beginning to leave between 35 and 39 years of age, implying an average career of 10 years. As experience is gained, careers often progress into supervisory, administrative or managerial positions.

Market Conditions and Job Prospects

Employment growth for mathematicians, actuaries and statisticians was about the same as the average for all occupations over the 1971-1981 decade. During the 1982 recession, employment declined and has since increased to pre-recession levels. Over the forecast period to 1995, growth is expected to be about the same as the average for all occupations. Job openings will be forthcoming as a result of an increase in the volume of new business and through attrition. As personnel retire, die or leave the occupation for other reasons, replacements will be needed.

The demand for mathematicians, actuaries and statisticians will depend on the outlook in the finance, insurance and real estate, public administration and business services sectors. Growth in public administration will likely be retarded by budgetary constraints; business services are expected to offer better prospects with the increasing use of subcontracting and with general economic growth. Some expansion could be expected in finance-related activities, since low interest rates and inflation strengthen economic growth.

Because of demographic changes, prospects are better for actuaries working in insurance and finance. With the increase of the working age population and accompanying higher incomes, more people will be purchasing life, property and casualty insurance. An aging population will increase the demand for pension plans and investment portfolios. With more personalized insurance options being offered, this professional group's expertise may be more in demand.

Teaching positions may exist in colleges and universities for those with PhDs in mathematics and/or statistics and knowledge of computer systems. Operations research is a new and expanding area for employment.

Although a number of job losses did occur in the early 1980s, employment in these occupations are not particularly sensitive to economic change and also tend to be stable throughout the year.

Earnings

Annual salaries for mathematicians and statisticians employed in the federal public service range from $16,150 to $27,702 for an entry-level position (MA-STA1); mid-level positions (MA-STA3) pay between $34,523 and $39,307; and top-level positions (MA-STA5) earn between $48,294 and $53,011. Chief statisticians' salaries range from $53,799 to $62,850.

Based on the 1984 National Graduate Survey, annual salaries paid to 1982 university graduates in this occupation averaged $25,686 in 1984, while community college graduates received $24,000.

Systems Analysts, Computer Programmers and Related Occupations 2183

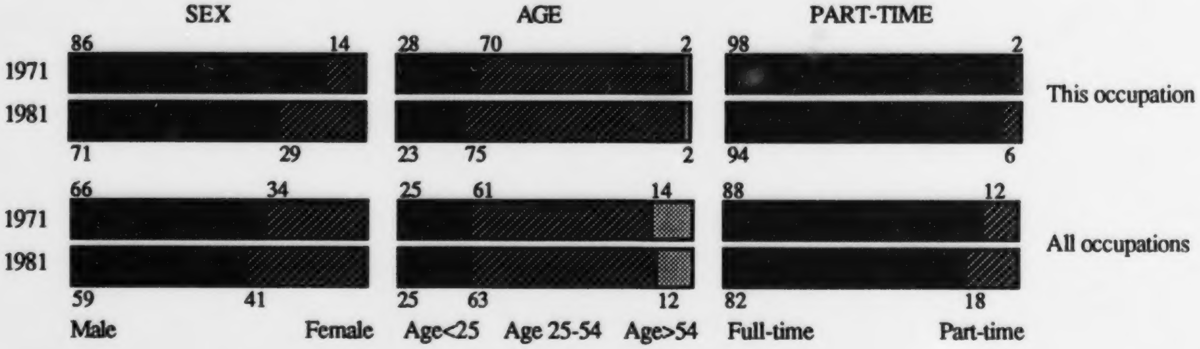
Employment Trends and Projections

	Employment			Average Annual Growth Rate (%)		
	1981	1986	1995	1971-81	1981-86	1987-95
This Occupation	59,800	62,900	70,900	10.5	1.0	1.2
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation		All Occupations
	1987-95	% of 1987 Jobs	% of 1987 Jobs
Net New Job Openings	6,600	10.3	11.1
Replacement Openings	7,100	11.0	49.2
Total Job Openings	13,700	21.3	60.3

CENSUS – 1971 and 1981 (%)



1981 CENSUS – Main Industries of Employment (%)

Services (31)
- Business Services (23)
- Education (6)

Manufacturing (18)
- Machinery (3)
- Electrical Products (2)
- Primary Metals (1)

Public Administration (16)
- Provincial Admin (8)
- Federal Admin (7)
- Municipal+Oth Gov't (2)

Geographic Distribution of Employment – 1981 (%)

Newfoundland	0.5	Ontario	48.1
Prince Edward Island		Manitoba	3.2
Nova Scotia	1.3	Saskatchewan	1.6
New Brunswick	0.8	Alberta	8.8
Quebec	28.2	British Columbia	7.6

Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
– College (1981-86)	2,044	34.9
– University (1981-86)	3,388	57.9
Trade Vocational Schools (1983/84 only)	423	7.2

Systems Analysts, Computer Programmers and Related Occupations 2183

Job Environment

This occupational group includes systems analysts, software systems analysts, programmers and methods analysts. Typically, these people work in an office with extensive computerized operations and networks. While a systems analyst designs and implements systems, methods and procedures, senior analysts often assume leadership roles in working groups. Careers in this field may lead to management positions.

Educational Background and Skills

The major channels of entry into these occupations are community colleges and universities. No formal licensing or accreditation of computer programmers — systems analysts exists, although the Certificate of Data Processing (CDP) is now gaining increased recognition. Trade/vocational schools as training sources are on the wane. In recent years, it has become necessary for systems analysts to have some managerial skills as well as a knowledge of company organization and objectives.

Nature of Supply

The majority of people in these occupations have a university degree in computer science, commerce or mathematics. Most community college graduates have studied computer science. Trade/vocational graduates have studied mainly mathematics and computer science. Individuals re-entering the labour force and immigrants have also been significant sources of supply in the past.

Although positions in this field have been filled by men in the past, the proportion of female programmers and analysts has more than doubled since 1981. The average age (31) has changed little since 1971.

The preponderance of systems analysts in the 25 to 54 age category and the small number in the 55-plus age group reflects the relative newness of this occupational area and its tendency to supply managerial occupations. Most individuals enter these occupations between the ages of 25 and 29 and begin to leave between 40 and 44, for a relatively short average career of 15 years.

Market Conditions and Job Prospects

Employment growth in this occupational group was exceptionally rapid during the 1970s, as computerization and microprocessor technology became widespread. Employment growth has since slowed down, and current projections for future growth approximate those for the labour market at large. Hirings resulting from replacement of workers who withdraw from the labour force are expected to be modest compared to other occupations, owing to the young age structure for this occupation. However, since programmers and analysts frequently move into other occupational areas, openings due to interoccupational mobility should be numerous.

Labour market conditions for systems analysts and programmers are more favourable than for most occupations. Unemployment has been relatively low and Canada Employment Centres have reported a number of hard-to-fill vacancies in these occupations.

Employment in this occupational group is mildly susceptible to changing business conditions but seasonal sensitivity is virtually non-existent. Though part-time work among programmers has increased, it is still somewhat rare. Employment of systems analysts, software analysts and programmers is dispersed throughout the industrial spectrum, with some concentrations in business services, manufacturing and public administration. Changes in technology have generally worked in favour of programmers and systems analysts. The information explosion has led to new openings for data-base managers, information systems engineers, software engineers, programmers and information scientists.

Earnings

According to the 1986 Computer Salary Survey conducted by Source EDP, prevailing salary ranges for programmer-analysts with one or two years of experience were $20,000 to $40,000 per year, depending on the complexity of the programming and the system. Salaries for those with five years' experience ranged from $30,000 to $57,000 per year. For senior analysts and project leaders with two to five years' experience, 1986 salaries ranged from $30,000 to $43,000. The range was $38,000 to $54,000 per year for those with at least seven years' experience.

The National Graduate Survey reported 1984 average annual salaries of $27,523 and $22,092 respectively for 1982 university graduates and community college graduates working in this occupational area two years after graduating.

Economists

2311

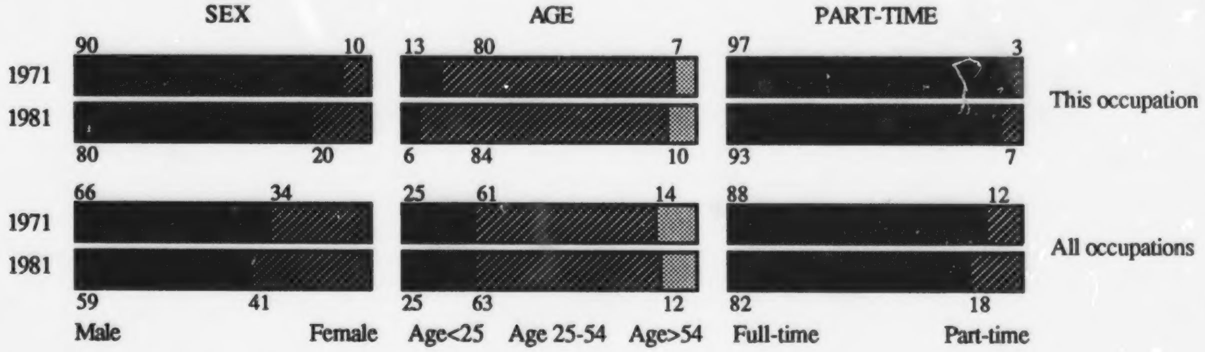
Employment Trends and Projections

	Employment			Average Annual Growth Rate (%)		
	1981	1986	1995	1971-81	1981-86	1987-95
This Occupation	11,900	12,500	14,000	8.0	1.0	1.2
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation		All Occupations
	1987-95	% of 1987 Jobs	% of 1987 Jobs
Net New Job Openings	1,200	9.7	11.1
Replacement Openings	2,400	19.1	49.2
Total Job Openings	3,700	28.8	60.3

CENSUS – 1971 and 1981 (%)



1981 CENSUS – Main Industries of Employment (%)

Public Administration (35)
- Federal Admin (18)
- Provincial Admin (15)
- Municipal+Oth Gov't (2)

Services (22)
- Business Services (17)
- Education (2)
- Misc Services (1)

Manufacturing (13)
- Chemicals+Chem Prod (2)
- Electrical Products (1)
- Petroleum+Coal Prod (1)

Geographic Distribution of Employment – 1981 (%)

Newfoundland	1.3	Ontario	43.7
Prince Edward Island	0.2	Manitoba	3.2
Nova Scotia	1.7	Saskatchewan	2.1
New Brunswick	1.5	Alberta	9.4
Quebec	26.9	British Columbia	9.2

Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
– College (1981-86)	42	4.4
– University (1981-86)	903	95.6
Trade Vocational Schools (1983/84 only)	0	0.0

Economists

2311

Job Environment

Economists may specialize in one of a number of areas such as agriculture, fiscal policy, energy or labour. They study how people earn their living and satisfy their basic needs, taking into consideration information such as conditions that influence the production and distribution of goods and services. While some economists (e.g., university professors) are primarily theoreticians interested in theories that explain economic trends, most are concerned with the application of economic policy in a particular area, such as health or education. Their work varies considerably, according to the employer. Generally, activities include research, analysis and preparation of estimates, forecasts and reports. A business economist will advise industrial firms and governmental agencies on issues related to operating efficiency, marketing methods and fiscal policy.

Economists who work for banks may analyse current business trends and develop forecasts of markets for money and credit. An investment economist may focus on forecasting the effects on industrial and securities markets of different social and political developments.

Educational Background and Skills

The minimum requirement for employment as an economist is a three- or four-year university bachelor's degree, with a major in economics. In general, however, postgraduate study is becoming increasingly important. Individuals interested in teaching economics at the university level must hold a PhD in a specialized area of the discipline. The educational requirements for employment as a market research analyst are less well defined. A university degree or community college diploma in fields such as commerce or the liberal arts are desirable, although not mandatory.

Nature of Supply

Most persons entering this occupational work force do so from the formal education system, although re-entrants from the household sector are also significant. Immigration and the military supplement the number of economists in Canada only marginally. Among recent post-secondary graduates finding employment in this field, 61% had completed bachelor's programs in fields such as commerce, economics, and planning and resource management. The bulk of the remainder (35% of the total) had graduate degrees in the same fields of study.

At the time of the 1981 census, 20% of this labour force was female. Albeit small, this proportion was almost twice that of 10 years earlier and is expected to continue growing. The average age of the members of this work force was 37 years in 1981, marginally above the 1971 average. Most individuals enter this profession between the ages of 25 and 34 years and do not leave normally until retirement at age 60 or 65, suggesting a career length of approximately 30 or 35 years. Most opportunities for employment in this field are located in large urban centres.

Market Conditions and Job Prospects

Over the forecast period, employment will approximate the average of all occupations. The demand for economists will depend on the outlook in public administration and business services where most economists are employed. Opportunities are expected to continue to be limited in the public administration sector because of fiscal restraint. However, opportunities in the business services sector may be better with the increasing practice by government agencies of hiring contractors and specialists. Demand will be affected by such factors as the need for analysis of an increasingly complex business environment, international trade and competition issues, cost-benefit analysis of social programs, changing tax structures and issues rising out of the nation's changing demography. Candidates with quantitative backgrounds and knowledge of electronic data-processing techniques will have a competitive edge in the job market.

These occupations are fairly stable since the services this group provides are not directly related to the business cycle. The occupational age profile indicates that entry-level positions do occur for new graduates. Experienced economists may advance to managerial occupations.

Technological improvements have enhanced the work of this profession as computer systems and software packages perform mathematical calculations, store and manipulate large amounts of data. Economists can spend more time analysing, preparing and writing reports.

Earnings

Based on the 1984 National Graduate Survey, the average annual salary of 1982 university graduates employed as economists was $26,177 in 1984.

Economists employed by the federal government in 1986 were paid $15,116 to $30,307 for entry-level positions. In the middle range they earned between $32,807 and $53,415; senior-level economists earned from $54,268 to a maximum of $68,209.

A 1986 survey by the Federal Pay Research Bureau on economists in industry showed that entry-level positions paid approximately $23,800 to $31,400. Mid-level economists earned approximately $29,700 to $57,900, and senior economists earned approximately $49,000 to $76,400.

Sociologists, Anthropologists and Related Social Scientists 2313

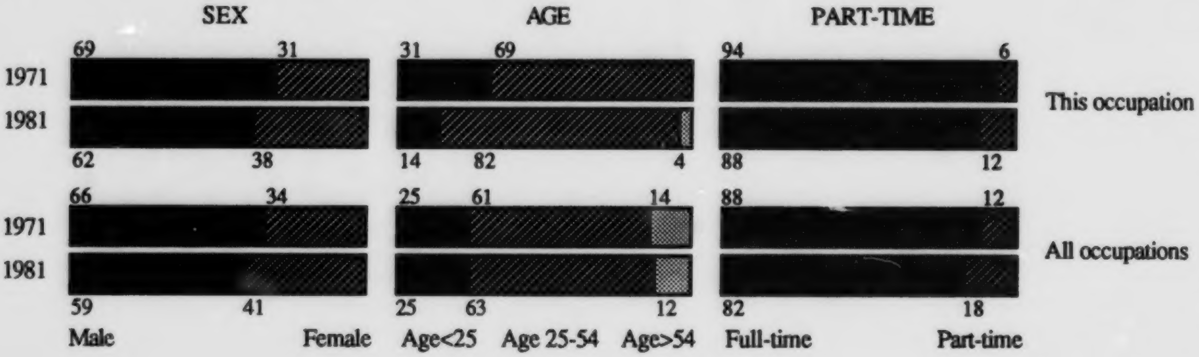
Employment Trends and Projections

	Employment 1981	 1986	 1995	Average Annual Growth Rate (%) 1971-81	 1981-86	 1987-95
This Occupation	1.300	1.400	1.600	12.4	2.2	1.3
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation 1987-95	 % of 1987 Jobs	All Occupations % of 1987 Jobs
Net New Job Openings	200	10.6	11.1
Replacement Openings	300	20.6	49.2
Total Job Openings	400	31.2	60.3

CENSUS – 1971 and 1981 (%)



1981 CENSUS – Main Industries of Employment (%)

Public Administration (48)
- Provincial Admin (24)
- Federal Admin (21)
- Municipal+Oth Gov't (4)

Services (48)
- Education (15)
- Oth Health Services (11)
- Business Services (11)

Trans+Stor+Comm+Util (2)
- Electric Power (1)

Geographic Distribution of Employment – 1981 (%)

Newfoundland	0.4	Ontario	21.5
Prince Edward Island		Manitoba	5.3
Nova Scotia	1.2	Saskatchewan	0.8
New Brunswick	1.2	Alberta	9.3
Quebec	53.7	British Columbia	7.7

Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
– College (1981-86)	14	12.2
– University (1981-86)	101	87.8
Trade Vocational Schools (1983/84 only)	0	0.0

Sociologists, Anthropologists and Related Social Scientists 2313

Job Environment

This occupational classification includes anthropologists, archaeologists, criminologists, ethnologists and sociologists.

Sociologists study human behaviour by examining social groupings, such as families, communities, clubs and other organizations. They study the characteristics of these groups, trace their origin and growth, and analyze how individuals' attitudes and behaviours are influenced by them. Sociologists are also interested in the impact of individuals on the groups to which they belong. Sub-fields of specialization include social psychology, urban sociology, industrial sociology, criminology, educational sociology, medical sociology, race and ethnic relations, religion, women's studies and sociobiology.

Like other social scientists, sociologists conduct research, which involves collecting and processing information. Increasingly, computers are being used to analyze the statistical data obtained through surveys and case studies. The results of the research are frequently used by administrators, educators, lawmakers, politicians and others addressing social problems or setting social policies.

Educational Background and Skills

A master's degree in sociology is the usual requirement for employment as a professional sociologist. Some training in statistics at the undergraduate level is desirable. Advanced positions in teaching or research are often obtained only by individuals holding a doctorate degree. Educational preparation for a career as an anthropologist begins at the undergraduate level, and must include the choice of an area of specialization within the field. Other areas of study which may be considered relevant are language, art and architecture, history and anthropology.

Nature of Supply

The education system is the major route of entry into these occupations, although the number of people coming from the household sector is significant. Immigrants represent a high proportion of this domestic labour force, although the proportion has diminished in recent years.

The average age of persons in these occupations was 33 years in 1981, three years older than was the average 10 years earlier. This reflects, in part, a general trend towards higher levels of pre-employment education. Most people are initially employed between the ages of 25 and 30 years, although entrance before and after these ages is common. In 1981, almost 40% of this occupational workforce was female, a significant increase over the proportion of 10 years earlier.

Market Conditions and Job Prospects

The outlook for these occupations during the 1987 to 1995 period is for about average growth. Increasing demand for social services is expected to increase the number of new job openings; job opportunities will also result from workers leaving the occupation because of death, retirement or other reasons. Employment is not particularly sensitive to swings in business cycles, but these occupations can be sensitive to government spending. The occupational age profile indicates that sociologists frequently advance to managerial and administrative positions. Relatively few workers may be "life-time" sociologists, a situation which may create better-than-average job openings for new graduates.

Employment opportunities are expected to be better for sociologists with quantitative backgrounds and training. The continuing need for social research and analysis, for administration of existing social programs and for the establishment of new programs will ensure continuing demand for the expertise of sociologists.

The present oversupply of sociologists and highly qualified candidates increases competition for these positions, and new graduates with only an undergraduate degree may encounter some difficulty in finding employment as sociologists.

Earnings

Based on the 1984 National Graduate Survey, salaries received by 1982 university graduates working in these occupations averaged $16,648.

Salaries in the federal public service for sociologists in 1987 ranged from $15,600 to $31,277 at the entry level, from $42,418 to $48,425 at a senior working level, and from $59,057 to $70,392 at the most senior managerial level.

Psychologists

2315

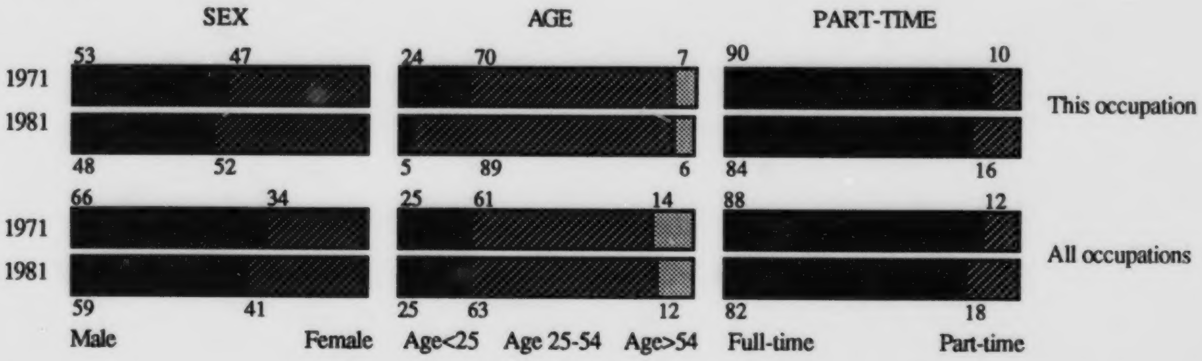
Employment Trends and Projections

	Employment 1981	Employment 1986	Employment 1995	Average Annual Growth Rate (%) 1971-81	Average Annual Growth Rate (%) 1981-86	Average Annual Growth Rate (%) 1987-95
This Occupation	8,500	10,000	11,200	7.9	3.2	1.2
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation 1987-95	This Occupation % of 1987 Jobs	All Occupations % of 1987 Jobs
Net New Job Openings	1,000	9.6	11.1
Replacement Openings	1,500	14.3	49.2
Total Job Openings	2,400	23.8	60.3

CENSUS – 1971 and 1981 (%)



1981 CENSUS – Main Industries of Employment (%)

Services (89)	Public Administration (10)
- Education (32)	- Provincial Admin (8)
- Oth Health Services (29)	- Federal Admin (2)
- Hospitals (27)	

Geographic Distribution of Employment – 1981 (%)

Newfoundland	1.1	Ontario	41.6
Prince Edward Island	0.2	Manitoba	3.2
Nova Scotia	2.7	Saskatchewan	1.9
New Brunswick	2.2	Alberta	8.5
Quebec	31.4	British Columbia	7.1

For further information, contact:

Canadian Psychological Association
Vincent Road
Old Chelsea, Quebec J0X 2N0
(819) 829-3927

Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
- College (1981-86)	21	3.7
- University (1981-86)	549	96.3
Trade Vocational Schools (1983/84 only)	0	0.0

Psychologists

2315

Job Environment

This group includes child psychologists, educational psychologists, industrial psychologists, mental health counsellors, neuropsychologists, rehabilitation psychologists and research psychologists.

These professionals study the behaviour of individual humans, dealing with mental processes, such as thinking, learning, remembering and decision making, as well as with human emotions, motives and personality. They use tests, questionnaires and controlled experiments to test data and form hypotheses. Some research psychologists investigate behaviour by carrying out experiments on both humans and animals.

In colleges and universities, psychologists combine teaching with research and administrative duties. In applied fields, they counsel, conduct training programs, provide hospital, school and clinic psychological services, and do market research.

Through their analysis of the human mind, psychologists provide information on intelligence and the effects of environment, heredity and other factors on emotions, thought, behaviour and health.

Educational Background and Skills

A career as a practising psychologist can require up to 10 years of formal preparation beyond the high-school level. Secondary studies in mathematics and the natural sciences are definite assets. Career-specific training usually involves a three- to four-year Bachelor of Arts or Science degree with a psychology major, followed by one or two years of study leading to a master's degree and a minimum of two additional years of study for a doctorate (PhD). Clinical and counselling psychology require a further period of practical training and internship. Although a master's degree is the minimum acceptable education requirement, a PhD in psychology is required for most jobs, and is usually a condition of professional licensure. Students interested in this field should check with the Provincial Psychological Association or the Canadian Psychological Association for information regarding current legal requirements in the probable province(s) of practice.

Nature of Supply

Most entrants to this field hold graduate degrees (56%), primarily in psychology, but also in the fields of teaching and education. Other potential sources of supply such as the household sector, immigration, the military and movements from other occupations, are minimal.

In 1981, 52% of Canada's psychologists were female, a slight increase over the proportion of 10 years earlier. The average age was 36 years, marginally higher than that in 1971. Some of this increase can be traced to higher average education levels in 1981. Most persons enter this field between the ages of 25 and 34 years, with retirements not starting in significant numbers until age 60, suggesting a career of at least 25 years.

Market Conditions and Job Prospects

From 1971 to the mid-1980s, employment growth in this occupation was greater than the average for all occupations. The outlook for the 1986 to 1995 period is for job opportunities to keep pace with the average.

Job openings will be a combination of new positions and openings caused by retirement, death and people leaving the occupation for other reasons. This occupation offers entry-level positions for new graduates; more experienced workers move into managerial positions. Job losses during an economic downturn are minimal, but this occupation is affected by provincial and federal expenditures.

On-going social and economic changes in society increase the demand for this professional group. However, with current provincial expenditures in health services unlikely to increase appreciably, opportunities for psychologists may be subdued. Psychologists with a clinical specialization should enjoy good job prospects, and job openings do occur for psychologists in correctional centres.

Earnings

Based on the National Graduate Survey, 1982 university graduates working in this area received an average salary of $30,586 in 1984.

Annual salaries for psychologists employed by the federal government in 1986 ranged from $26,086 to $34,437 for entry-level positions. Mid-level positions paid from $39,596 to $48,159, and senior level psychologists earned from $49,880 to $60,751.

Social Workers 2331

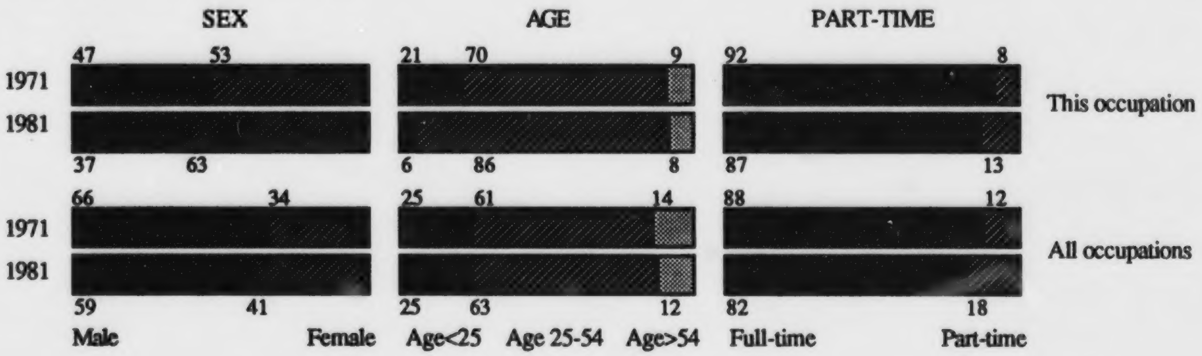
Employment Trends and Projections

	Employment 1981	Employment 1986	Employment 1995	Average Annual Growth Rate (%) 1971-81	Average Annual Growth Rate (%) 1981-86	Average Annual Growth Rate (%) 1987-95
This Occupation	34,000	41,000	46,400	9.9	3.8	1.2
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation 1987-95	This Occupation % of 1987 Jobs	All Occupations % of 1987 Jobs
Net New Job Openings	4,400	10.4	11.1
Replacement Openings	5,600	13.3	49.2
Total Job Openings	10,000	23.7	60.3

CENSUS – 1971 and 1981 (%)



1981 CENSUS – Main Industries of Employment (%)

Services (67)	Public Administration (33)
- Oth Health Services (46)	- Provincial Admin (23)
- Hospitals (11)	- Federal Admin (5)
- Misc Services (4)	- Municipal+Oth Gov't (4)

Geographic Distribution of Employment – 1981 (%)

Newfoundland	1.2	Ontario	35.9
Prince Edward Island	0.5	Manitoba	5.4
Nova Scotia	2.8	Saskatchewan	3.3
New Brunswick	2.1	Alberta	9.3
Quebec	25.9	British Columbia	13.2

Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
- College (1981-86)	382	19.6
- University (1981-86)	1,570	80.4
Trade Vocational Schools (1983/84 only)	0	0.0

Social Workers

2331

Job Environment

Social work professionals are employed in a range of community settings, including health centres, housing authorities, group homes, correctional institutes, school boards, adoption agencies and retirement centres. They may work not only with the poor, but also with troubled youth, the unemployed, victims of crime, the sick and disabled, and families with problems. Their job titles include adoption agent, family counsellor, parole officer, welfare case worker and others.

Besides counselling, the professional social worker may also advocate on behalf of the client for needed services, particularly in communities where the health and social services have limited mandates. In some cases, social workers may initiate legal action, such as obtention of crown wardship on behalf of a child.

All social workers share formal training in counselling and social policies and a commitment to a professional code of ethics. Their approach to social reform and therapeutic methods are based on a belief that the social conditions of humanity can be bettered.

Educational Background and Skills

The minimum educational requirement for employment as a social worker is graduation from a two-year community college program in social work. However, employment opportunities are diminishing for new graduates of these programs. Students interested in a career in this field should hold at least a four-year Bachelor of Social Work degree. Advanced or administrative positions may require Master of Social Work credentials. Previous experience in this area, for example through volunteer activity, is a strong asset. Expertise gained through on-the-job training is important for career advancement. Although not mandatory, registration with a provincial professional regulatory association is a possibility for social workers.

Nature of Supply

Most individuals enter this profession from the formal education system. Among those entrants, 59% hold an undergraduate university degree, primarily in social work, but also in such related fields as sociology and psychology; 21% are graduates of community college programs in social work or education and counselling; and 17% hold master's degrees, primarily in social work, sociology or education.

In 1981, 63% of all social workers and probation/parole officers in Canada were women, which is substantially higher than the proportion of a decade earlier.

Marked declines in the number of people less than 25 years old may reflect the move to higher levels of preparatory training. Most persons enter this occupation between the ages of 25 and 34, and begin to leave 25 to 35 years later.

Market Conditions and Job Prospects

Employment growth among social workers was faster than the average for all occupations during the 1971 to 1981 decade. During the early 1980s, employment increased, and social workers experienced better-than-average opportunities. Over the forecast period to 1995, employment is expected to be about the same as the average for all occupations.

Close to 50% of all social workers work in health services, while another significant number work in provincial administration and hospitals. Federal and municipal governments account for about 10%. Although occupations in social work are not substantially affected by economic fluctuations, they are sensitive to provincial expenditures in health services and federal expenditures on social programs.

The very nature of social work — to help individuals and families adjust and cope with problems — means the demand for social workers will increase as the total population increases.

Earnings

Based on the 1984 National Graduate Survey, 1982 university graduates in this occupation were paid $24,844 on average, while graduates of community colleges received $18,477.

In most provinces, social workers in government institutions are paid better than those in the private or voluntary sectors. The 1986 to 1987 annual salaries for social workers as reported by the provincial governments ranged from $22,104 to $39,600 for junior and senior social workers and from $29,556 to $43,498 for supervisors and administrators.

Annual salaries for social workers employed by the federal government in 1986-1987 ranged from $22,094 to $33,299 for an entry-level position. Employees in the middle range earned from $34,216 to $41,196. Senior-level social workers earned from $46,361 to $54,971.

Occupations in Welfare and Community Services 2333

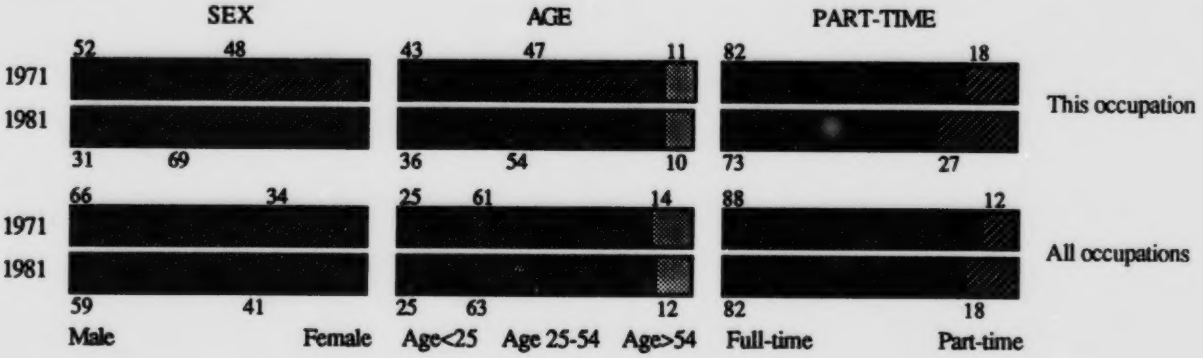
Employment Trends and Projections

	Employment 1981	Employment 1986	Employment 1995	Average Annual Growth Rate (%) 1971-81	Average Annual Growth Rate (%) 1981-86	Average Annual Growth Rate (%) 1987-95
This Occupation	41,700	50,700	58,100	9.0	4.0	1.4
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation 1987-95	This Occupation % of 1987 Jobs	All Occupations % of 1987 Jobs
Net New Job Openings	6,200	11.9	11.1
Replacement Openings	13,300	25.6	49.2
Total Job Openings	19,500	37.5	60.3

CENSUS – 1971 and 1981 (%)



1981 CENSUS – Main Industries of Employment (%)

Services (76)	Public Administration (22)
– Oth Health Services (41)	– Municipal+Oth Gov't (11)
– Misc Services (12)	– Provincial Admin (8)
– Hospitals (7)	– Federal Admin (3)

Geographic Distribution of Employment – 1981 (%)

Newfoundland	1.4	Ontario	39.0
Prince Edward Island	0.6	Manitoba	8.1
Nova Scotia	3.6	Saskatchewan	5.8
New Brunswick	2.4	Alberta	11.2
Quebec	14.0	British Columbia	13.4

Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
– College (1981-86)	554	34.5
– University (1981-86)	870	54.2
Trade Vocational Schools (1983/84 only)	182	11.3

Occupations in Welfare and Community Services

2333

Job Environment

This group of occupations includes camp counsellors, charity workers, child welfare workers and community service workers.

Child care workers, who initially worked with the poor, now deal with many issues. Workers in welfare and community services provide counselling to individuals and families in their own homes. They also care for children in group homes and treatment centres. Other work settings include schools, community clinics, detention centres, hospitals and social service agencies.

Social service assistants work alone or as part of a team of social workers, psychiatrists, physicians and teachers. Their concern is the well-being of individuals, families and emotionally disturbed children. In carrying out their tasks, social service assistants assess individual needs and provide treatment which may include reality therapy, behaviour modification, play therapy and individual or group counselling.

Educational Background and Skills

The preparatory requirements for employment in this occupation vary with the position. In general, however, candidates must complete a two- or three-year community college program in an area such as recreation leadership, social services or child care. Such a program usually combines classroom work with practical experience. Three or four years of university study may be required for employment in supervisory or administrative positions.

Nature of Supply

Currently, most people enter this field from either the education system or the household sector. Military personnel and immigrants only marginally supplement this labour market, and interoccupational mobility is not an important contributing factor. Among those entering this occupation from the education system, the largest group (52%) complete a university undergraduate program of study, primarily in such work-related fields as physical education, social work or welfare, and psychology. Community college graduates (accounting for 30% of the total) have backgrounds in related fields, such as social services, education counselling and recreation and sports. Trade/vocational graduates (13%) and individuals holding advanced university degrees (6%) are also primarily trained in the social sciences.

At the time of the 1981 census, a comparatively high proportion of this work force (36%) was under 25 years of age. Most people join this work force before the age of 24, although many enter the field before age 29. In general, retirements do not begin until age 65, implying a career span of 35 to 40 years. Current statistics suggest that women remain in these occupations longer than do their male co-workers.

Market Conditions and Job Prospects

During the 1971 to 1981 decade, employment in these occupations grew faster than the average for all occupations. The growth rate continued to increase in the early 1980s and will remain about average into the mid-1990s.

Demand for these workers is tied to municipal expenditures for recreation centres, swimming pools and related sport and fitness activities. Current social changes may also influence employment demand. For example, as more parents both work outside the home, camp counsellors and directors will be needed to provide winter and summer programs; as the population ages, more services will be needed for senior citizens; as more community rehabilitation services become available, more specialized staff will be needed to assist disabled persons.

Most positions are in the services sector, although some employment is concentrated in public administration. Jobs in the services sector are generally stable and few are lost during economic recessions. However, employment may be sensitive to government expenditures for social programs and health services. The youthful age profile of these occupations indicates that they offer mainly entry-level positions for new graduates of high school, community college and university.

Volunteer programs enable young people to gain marketable managerial and leadership skills while they are involved in community social work.

Earnings

The range of salaries for graduate child care workers is between $13,000, and $28,000, the average salary being $18,000 to $20,000. The large difference is a result of varying types of work and facilities. With additional education, a child care worker can earn up to $30,000 a year. Salaries also increase with experience.

The National Graduate Survey reported 1984 average annual salaries of $19,065 for 1982 university graduates and $15,330 for 1982 community college graduates working in these occupations.

Lawyers and Notaries 2343

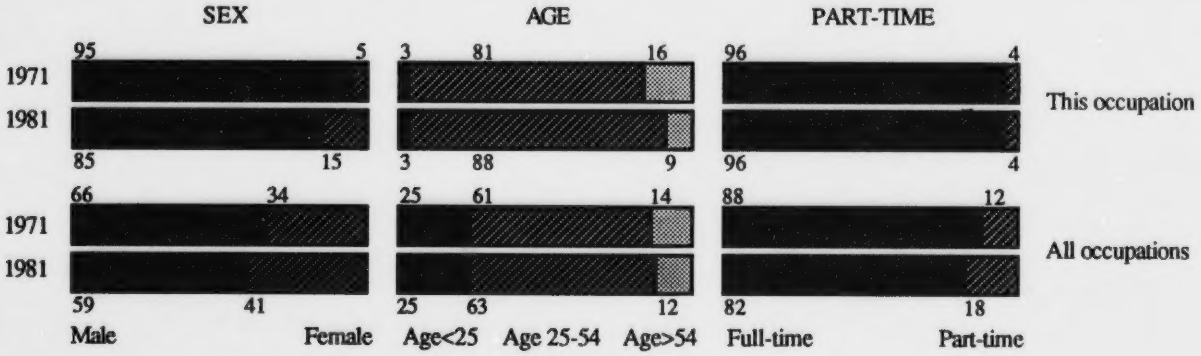
Employment Trends and Projections

	Employment			Average Annual Growth Rate (%)		
	1981	1986	1995	1971-81	1981-86	1987-95
This Occupation	33,500	38,300	45,800	7.6	2.7	1.7
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation		All Occupations
	1987-95	% of 1987 Jobs	% of 1987 Jobs
Net New Job Openings	5,800	14.4	11.1
Replacement Openings	8,300	20.8	49.2
Total Job Openings	14,100	35.3	60.3

CENSUS – 1971 and 1981 (%)



1981 CENSUS – Main Industries of Employment (%)

Services (85)	Public Administration (10)	Fin+Ins+Real Estate (2)
– Business Services (83)	– Provincial Admin (6)	– Fin+Ins+Real Estate (2)
	– Federal Admin (2)	
	– Municipal+Oth Gov't (1)	

Geographic Distribution of Employment – 1981 (%)

Newfoundland	0.8	Ontario	39.5
Prince Edward Island	0.2	Manitoba	3.5
Nova Scotia	2.7	Saskatchewan	3.1
New Brunswick	2.0	Alberta	9.9
Quebec	25.2	British Columbia	13.0

Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
– College (1981-86)	0	0.0
– University (1981-86)	1,543	100.0
Trade Vocational Schools (1983/84 only)	0	0.0

Lawyers and Notaries

2343

Job Environment

Lawyers and notaries interpret laws and offer counsel and advice to business and to individuals. For lawyers who specialize in corporate law (such as stock exchange regulations and corporate income tax laws) and commercial law (import-export regulations, currency controls or bankruptcy regulations), a background in commerce, finance or accounting is a definite asset. Labour lawyers advise on policy matters and wage trends and represent their clients in negotiations and at tribunals. Criminal lawyers defend people who have been charged with crimes. Other areas of specialization include industrial property law, family law, estate law, municipal law and litigation.

Notaries have responsibilities which differ in various provinces. In Quebec, notaries are registered and provide assistance and advice outside the courts. In British Columbia, notaries draft and file property mortgages, leases and transfer documents as well as draw up and execute last wills and testaments. Notaries in the rest of Canada are lawyers who qualify for a notary's certificate, or local persons who witness signatures and take oaths and affidavits.

Educational Background and Skills

Admission to most provincial Bars requires the completion of at least two years of undergraduate training, three years at a recognized law school, 12 months of articling and the completion of a six-month Bar Admission course. In Quebec, graduates from CEGEPs enter the Bachelor of Law program for three years, complete eight months of Bar Admission courses, and do six months of training with a practising lawyer before they are admitted to the Bar. After obtaining a diploma from the College d'Enseignement Général et Professionnel, Quebec notaries must take a three-year university degree program at a law faculty.

Nature of Supply

The major source of new supply is the formal education system. From 1982 to 1984, there were 3,200 graduates each year. Landed immigrants and the military contribute minimal numbers.

The unemployment rate (1.5%) for lawyers and notaries was well below the overall occupational average. However, the corresponding rate for new law graduates was 14%, perhaps indicating that the market is saturated. General legal jobs exist mostly in areas outside of large cities.

Entrance into the occupation occurs between 26 and 34 years of age, with people beginning to leave between the ages of 56 and 64, implying that the average career as a lawyer spans 30 years. The proportion of women in the profession has increased from 5% in 1971 to 15% in 1981, a proportion that is expected to grow steadily.

Market Conditions and Job Prospects

In the 1970s and early 1980s, the employment growth rate was faster than the overall average for all occupations. The outlook for the forecast period is for employment growth to be above the occupational average. Employment opportunities correspond to the growth in business services and public administration. The demand for legal services and especially growth in legal specialties is affected by legislative changes. Growth areas for legal advice include constitutional law, consumer protection, family law and corporate-securities law.

Employment is generally stable. However, lawyers with their own practices can be affected by business cycle movements and by the trend to advertising of legal services.

Earnings

Based on the 1984 National Graduate Survey, a 1982 university graduate received approximately $27,859 a year. According to Hansen's *1986 Executive and Management Compensation Report*, a legal assistant's average annual salary was $30,200, with a salary range of $25,500 to $38,200; an associate attorney's average salary was $31,100 with a salary range of $26,000 to $38,900; an attorney earned $47,100 with a salary range of $34,800 to $61,400; a senior attorney earned $62,800 with a salary range of $53,600 to $72,500; and a top corporate legal executive/general counsel made $71,900 plus per year with the salary range being $47,900 to $104,000 plus. Senior legal partners of large well-known firms can have income levels of more than $200,000 a year, including profit sharing and bonuses.

Librarians, Archivists and Conservators 2351

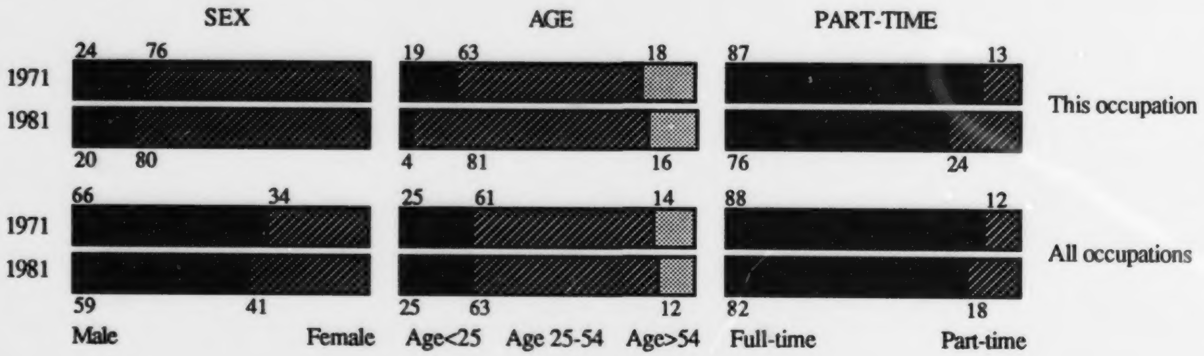
Employment Trends and Projections

	Employment 1981	Employment 1986	Employment 1995	Average Annual Growth Rate (%) 1971-81	Average Annual Growth Rate (%) 1981-86	Average Annual Growth Rate (%) 1987-95
This Occupation	14,700	16,000	17,900	7.8	1.8	1.1
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation 1987-95	This Occupation % of 1987 Jobs	All Occupations % of 1987 Jobs
Net New Job Openings	1,500	9.4	11.1
Replacement Openings	4,700	28.7	49.2
Total Job Openings	6,200	38.1	60.3

CENSUS – 1971 and 1981 (%)



1981 CENSUS – Main Industries of Employment (%)

Services (80) – Education (65) – Hospitals (7) – Business Services (3)	Public Administration (13) – Federal Admin (5) – Provincial Admin (4) – Municipal + Oth Gov't (3)	Trans + Stor + Comm + Util (2)

Geographic Distribution of Employment – 1981 (%)

Newfoundland	1.6	Ontario	39.5
Prince Edward Island	0.5	Manitoba	4.1
Nova Scotia	2.5	Saskatchewan	4.6
New Brunswick	1.8	Alberta	9.7
Quebec	24.4	British Columbia	11.4

For further information, contact:

School of Librarianship
University of British Columbia
831-1956 Main Mall
Vancouver
British Columbia V6T 1Y3
(604) 228-4991

Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
– College (1981-86)	0	0.0
– University (1981-86)	428	100.0
Trade Vocational		
· Schools (1983/84 only)	0	0.0

Librarians, Archivists and Conservators

2351

Job Environment

This occupational group consists of three distinct specialties. Contemporary librarians, aided by the latest computer technology, provide both technical services, acquiring and organizing library collections; and public services, assisting users in finding information. They work in a range of positions for tax-supported institutions at the federal, provincial and municipal levels of government.

Archivists are responsible for the selection, evaluation and acquisition of documents for institutions such as universities, museums and different levels of government. They develop contacts and pursue leads to obtain materials such as historical photographs, maps, films, tapes, private manuscripts and outdated public, municipal and corporate records. Archivists also authenticate records and index and classify all sources to be preserved. They provide a research and reference service to the public.

Conservators preserve and restore historic objects and works of art in the collections of archives, museums, universities and government departments. These collections may include paintings, photographs, pottery, antique furniture, documents, works of art on paper or in metal or stone, and other artifacts. In their work, conservators use various scientific techniques, such as ultraviolet photography and radiographic and microscopic examination. Conservators also conduct research, prepare reports and advise on the condition of artifacts and works of art.

Educational Background and Skills

The minimum educational requirement for librarians is an undergraduate degree, although a graduate degree in library science is becoming necessary. Some knowledge of computer science and, in particular, computerized index systems, is also useful, owing to increased automation in libraries. A graduate degree in archival studies is desirable for archivists. A knowledge of chemistry is an asset to conservators.

Nature of Supply

The primary source of new supply to this occupation is the formal post-secondary education system. Labour force re-entrants and immigrants also supplement the supply.

This occupational category is predominately female. The average age (40) changed little over the 1971 to 1981 period. The number of librarians and archivists under the age of 25 has dropped significantly since 1971, reflecting the increased educational requirements for these occupations. A typical career lasts, on average, between 35 and 40 years, and entry normally occurs between the ages of 25 and 29.

Market Conditions and Job Prospects

Employment growth among librarians, archivists and conservators increased faster than the average for all occupations in the 1971 to 1981 decade, but has slowed down in the 1980s. The outlook for the 1986 to 1995 period is subdued employment growth equal to the average for all occupations.

The services sector, particularly education services, employ a substantial portion of workers in this category. About 12% of the group work for the federal, provincial and municipal governments.

Employment in these occupations is unresponsive to business cycle swings, but does display sensitivity to government expenditures. The age profile implies that entry-level positions are available to new university graduates.

Demand for librarians will vary over the projection period. The prospects are best for persons specializing in scientific and technical fields, particularly in research libraries.

Earnings

Based on the 1984 National Graduate Survey, 1982 university graduates working in this occupational area received an average salary of $22,898.

The 1986 Special Libraries Association Triennial Salary Survey showed that salary ranges for librarian/information specialists ranged from $20,053 to $41,359 across Canada. In Montreal, their salaries ranged from $20,880 to $44,200; in Ottawa, from $20,000 to $38,000; in Toronto, from $18,224 to $41,414; and in Victoria and Vancouver, from $22,000 to $40,176.

Salaries for librarians employed by the federal government in 1986-1987 ranged from $21,932 to $29,029 for an entry-level position; from $31,551 to $36,987 for mid-level positions; and from $38,828 to $47,464 for senior positions.

Archivists paid by provincial governments in 1985-1986 earned the following salaries: Alberta, $22,500 to $38,352; British Columbia, $28,091 to $31,826; Quebec, $21,976 to $37,351; Nova Scotia, $23,898 to 34,174.

Technicians in Library, Museum and Archival Sciences 2353

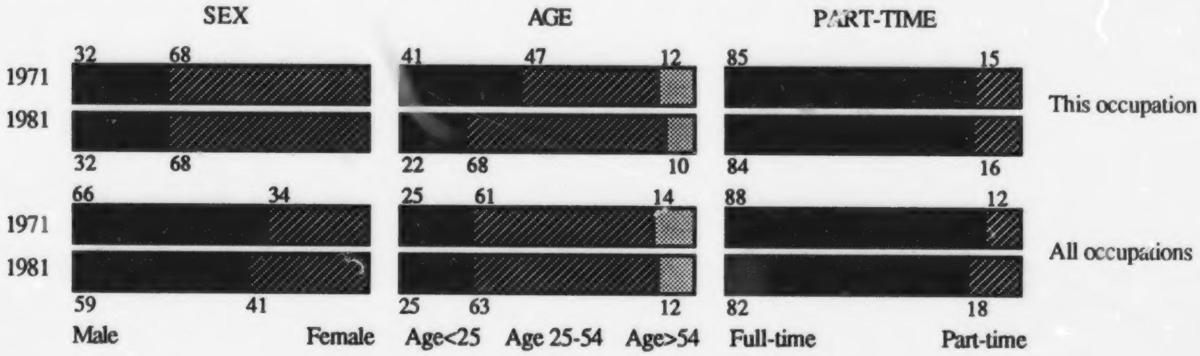
Employment Trends and Projections

	Employment 1981	Employment 1986	Employment 1995	Average Annual Growth Rate (%) 1971-81	Average Annual Growth Rate (%) 1981-86	Average Annual Growth Rate (%) 1987-95
This Occupation	3,300	3,700	4,200	9.6	2.0	1.3
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation 1987-95	This Occupation % of 1987 Jobs	All Occupations % of 1987 Jobs
Net New Job Openings	400	10.7	11.1
Replacement Openings	800	21.4	49.2
Total Job Openings	1,200	32.1	60.3

CENSUS – 1971 and 1981 (%)



1981 CENSUS – Main Industries of Employment (%)

Services (76)	Public Administration (19)	Trans+Stor+Comm+Util (2)
- Education (58)	- Provincial Admin (9)	
- Misc Services (13)	- Federal Admin (6)	
- Business Services (2)	- Municipal+Oth Gov't (4)	

Geographic Distribution of Employment – 1981 (%)

Newfoundland	0.3	Ontario	24.6
Prince Edward Island	0.3	Manitoba	1.5
Nova Scotia	1.2	Saskatchewan	2.8
New Brunswick	1.5	Alberta	5.5
Quebec	54.6	British Columbia	7.1

Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
- College (1981-86)	54	21.1
- University (1981-86)	191	74.6
Trade Vocational Schools (1983/84 only)	11	4.3

Technicians in Library, Museum and Archival Sciences

2353

Job Environment

Library technicians assist professional librarians in operating a library. This involves establishing, organizing, maintaining and making information collections accessible to users. Technicians may work in all these areas in small libraries or when librarians are absent. However, in larger libraries technicians usually work in a specific area, such as reference, cataloguing or circulation.

Technicians in the public services of a library may manage the circulation desk, handle information requests and operate a telex machine or computer to verify or search for information. Technicians also set up displays and instruct users in the operation of audio-visual equipment and microfilm or microfiche readers. Those who work in the technical service area of libraries are usually responsible for acquiring, organizing and displaying library materials, doing searches, cataloguing and ordering materials and maintaining files.

Educational Background and Skills

A library or museum technician must have graduated from a community college or institute of technology in a program that emphasizes library, museum or restoration techniques. The completion of a master's degree in a related field of study is considered a desirable asset for career advancement beyond the technician level.

Nature of Supply

Entrants into this occupation come primarily from the formal post-secondary education system. Other sources of supply include re-entrants into the labour force, and immigrants.

This occupation is predominately female. The average age (33) of the individuals in this occupation has stayed fairly stable since 1971, with only a slight change in the age structure, reflected by the increased number of technicians in the 25-to-54-year age group and the high percentage of this occupational group that are young people. A typical career in this occupation lasts, on average, between 25 and 30 years and begins when the individual is between the ages of 25 and 29.

Market Conditions and Job Prospects

Between 1986 and 1995, the employment growth rate of technicians in libraries and museums is expected to be about the average of all occupations. This is something of a departure from the 1970s, when employment growth among library technicians was much faster than average.

Most technicians work in education and miscellaneous services, with a small concentration employed in the three levels of government. Although employment in this occupation is unlikely to be affected by business cycles, it is somewhat sensitive to government spending.

Beginning in the 1960s, technological innovations in library procedures have lowered cataloguing costs, encouraged rapid diffusion and enabled most library systems to become fully automatic. Extensive data bases specialize in areas relating to law, patents, medical and chemical information. Techniques of surveillance, such as bar codes, track and identify users; scanning devices read bar codes and enter data automatically to help control and manage inventory. The effects of this technology on employment are not straightforward: computer systems that catalogue publications and control circulation may increase opportunities for technicians, but as systems become easier to use by the public, there may be fewer employment opportunities for junior technicians.

Earnings

Based on the National Graduate Survey, 1982 university graduates employed as library technicians in 1984 were paid $14,471 per annum, while community college graduates received $13,736.

The following are salary ranges of library technicians by province and type of library:[1] British Columbia, public libraries in 1986 – $12,000 to $26,100; university/college libraries in 1986 – $13,440 to $28,000; Alberta, provincial government libraries in 1985 – $19,080 to $26,580; public libraries in 1984 – $15,390 to $31,179; Saskatchewan, provincial government libraries in 1986 – $19,284 to $21,552; regional and municipal libraries in 1985 – $15,012 to $29,784; Manitoba, provincial government libraries in 1984 – $17,362 to $22,998; Ontario, provincial government libraries in 1986 – $16,557 to $27,742; public libraries in 1984 – $12,959 to $21,550; Quebec, provincial government libraries in 1986 – $18,555 to $27,687; Nova Scotia, provincial government libraries in 1986 – $17,080 to $24,012; public libraries in 1985 – $15,645 to $23,604; New Brunswick, all libraries in 1985 – $14,066 to $21,970; P.E.I., provincial government in 1986 – $14,495 to $23,355; Yukon government libraries in 1986 – $27,420 to $31,925.

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[1] *Canadian Library Yearbook*, Library Salary Overview, 1986.

Educational and Vocational Counsellors 2391

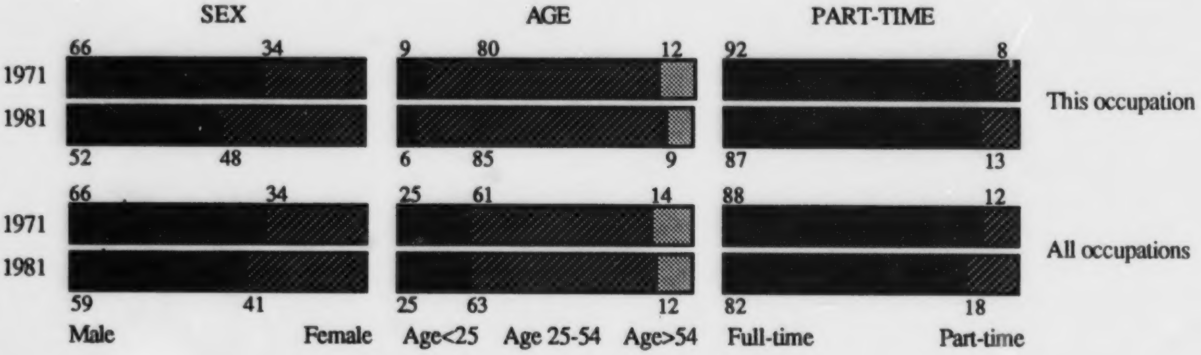
Employment Trends and Projections

	Employment			Average Annual Growth Rate (%)		
	1981	1986	1995	1971-81	1981-86	1987-95
This Occupation	5,600	6,200	7,000	2.6	2.0	1.2
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation		All Occupations
	1987-95	% of 1987 Jobs	% of 1987 Jobs
Net New Job Openings	600	9.7	11.1
Replacement Openings	2,100	33.3	49.2
Total Job Openings	2,700	43.1	60.3

CENSUS – 1971 and 1981 (%)



1981 CENSUS – Main Industries of Employment (%)

Services (87)	Public Administration (12)
- Education (78)	- Provincial Admin (7)
- Oth Health Services (4)	- Federal Admin (4)
- Misc Services (2)	- Municipal+Oth Gov't (2)

Geographic Distribution of Employment – 1981 (%)

Newfoundland	1.6	Ontario	36.7
Prince Edward Island	0.4	Manitoba	5.3
Nova Scotia	2.9	Saskatchewan	3.8
New Brunswick	2.6	Alberta	10.2
Quebec	22.2	British Columbia	14.7

Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
- College (1981-86)	48	11.6
- University (1981-86)	366	88.4
Trade Vocational Schools (1983/84 only)	0	0.0

Educational and Vocational Counsellors 2391

Job Environment

Specialists among counsellors include educational advisors, group development workers and vocational counsellors. These people are no longer limited to school activities and students' formal years of education. Increasingly, they work in business, industry, government, community agencies, and in consulting. Their responsibilities include helping people to make career decisions at various stages of life and to develop the life skills necessary for coping with a rapidly changing society.

Career counsellors first assess a client's needs and then provide the appropriate counselling. In the assessment phase, they may give the client a series of tests to uncover abilities, skills, aptitudes, interests and motivation. Once these have been carefully analysed, the counsellor reviews them with the client and discusses possible job hunting techniques. Other kinds of counsellors may specialize in groups with special needs, such as retired people, disabled people, women, ethnic minorities, immigrants, prison inmates, apprentices and the unemployed.

Educational Background and Skills

The basic educational requirement in this field is a university undergraduate degree with a concentration in education, psychology, social work or sociology. A master's degree in a related field is considered an asset. In Quebec, a master's degree in career counselling is a requirement of la Corporation professionnelle des conseillers d'orientation du Québec. In most school systems, the counsellor must be a certified teacher.

Nature of Supply

The post-secondary education system provides the main channel of entry into this occupation. Augmenting the supply are labour force re-entrants and immigrants. It is estimated that the influx of people from related occupations will exceed the negative flow, suggesting that many people enter this field in the latter part of their career.

From 1971 to 1981, the number of women choosing this career increased to the point where it now roughly equals the number of men. The average age (38) as well as the age structure of this occupation have remained relatively stable since 1971, although the younger age profile indicates that new graduates are admitted to this profession as older workers advance to administrative or managerial positions. A typical career spans 20 years, entry into the occupation normally occurring between the ages of 20 and 30.

Market Conditions and Job Prospects

The employment outlook for this occupation calls for about average growth over the next eight years, based on the outlook in the education sector. The majority of educational and vocational counsellors work in this field, while another 10% are employed by the three levels of public administration. Jobs in the services sector tend to be recession-resistant; relatively few job losses occur during an economic downturn. However, these occupations are influenced somewhat by provincial funding of education services and enrollment.

Changing education patterns may increase the demand for counsellors as well as their expertise. The trend toward continuing education increases the student population and the number of students who may need counselling services. Affirmative action and employment equity programs may increase the demand for counsellors who assist special-need clients.

Enrollment in secondary schools is expected to increase in the early 1990s, but overall fiscal constraints may limit opportunities. The outlook may be more favourable for counsellors who can serve the segment of older students, because this group will increase with the natural aging of the population.

Earnings

Counsellors' salaries vary according to the type of organization for which they work. Counsellors working in the public school system earn the same salaries as teachers. Educational and vocational counsellors paid by the provincial governments earned the following salaries in 1985-1986.

British Columbia	
Counsellor-Apprenticeship and Industrial Training	$26,983 — $40,615
Alberta	
Education Counsellor	31,680 — 45,180
Education Counsellor Aide	21,180 — 27,540
Ontario	
Supervisor	39,707 — 48,530

Based on the 1984 National Graduate Survey, salaries received by 1982 university graduates working in this field averaged $25,477, while graduates from community colleges were paid $16,276.

Ministers of Religion 2511

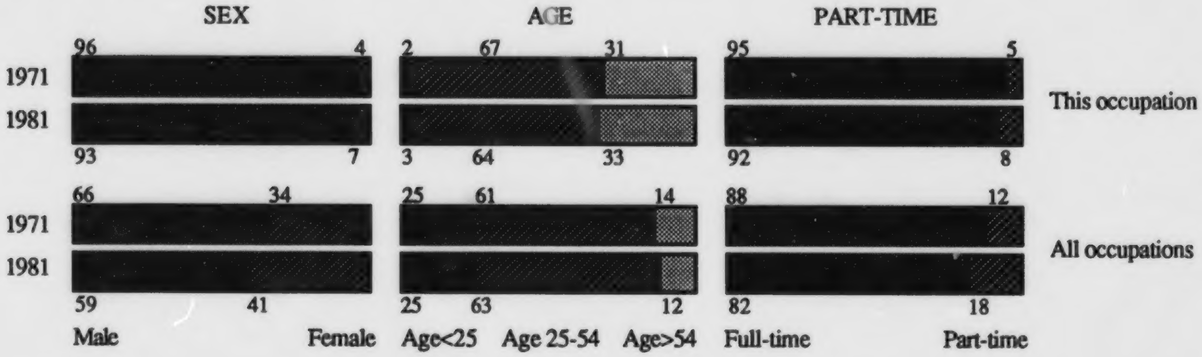
Employment Trends and Projections

	Employment			Average Annual Growth Rate (%)		
	1981	1986	1995	1971-81	1981-86	1987-95
This Occupation	23,800	26,400	28,000	1.6	2.0	0.6
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation		All Occupations
	1987-95	% of 1987 Jobs	% of 1987 Jobs
Net New Job Openings	1,200	4.6	11.1
Replacement Openings	15,400	57.5	49.2
Total Job Openings	16,600	62.1	60.3

CENSUS – 1971 and 1981 (%)



1981 CENSUS – Main Industries of Employment (%)

Services (98)
- Religion (94)
- Hospitals (3)

Geographic Distribution of Employment – 1981 (%)

Newfoundland	3.6	Ontario	33.8
Prince Edward Island	1.0	Manitoba	4.7
Nova Scotia	3.9	Saskatchewan	6.2
New Brunswick	4.3	Alberta	9.9
Quebec	22.3	British Columbia	9.8

Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
– College (1981-86)	0	0.0
– University (1981-86)	320	100.0
Trade Vocational Schools (1983/84 only)	0	0.0

For further information, contact:

Personnel Resources
The Anglican Church of Canada
600 Jarvis Street
Toronto, Ontario M4Y 2J6
(416) 924-9192

Board of Jewish Education
Suite 232
4600 Bathurst Street
Willowdale, Ontario M2K 3V3
(416) 633-7700

Ministers of Religion

2511

Job Environment

This occupational group includes bishops, curates, missionaries, evangelists, priests, rabbis and Salvation Army officers. In spite of their different religious denominations, their work remains essentially the same: conducting worship services and special ceremonies, teaching, counselling, managing, and developing community relations. Most clerics serve as leaders of churches and synagogues. Some serve as chaplains in the armed forces, in correctional institutions, hospitals, on university campuses or as missionaries at home and abroad.

Skills and Educational Background

The academic training required to become a minister of religion varies from one religious group to another. Some require only a certificate in religious studies, while others may require a Bachelor of Arts degree as well as a bachelor's or master's degree in theology. Some churches also require a period of internship in the practical activities of the ministry, under the supervision of an experienced minister. Thus, becoming a member of the clergy may take from two to seven years. Exceptions to this process exist for older, more experienced individuals.

Nature of Supply

The majority of individuals entering the occupation have a bachelor's degree in religion/theology, psychology or sociology (78%) or a post-graduate degree in religion/theology (22%). Based on the 1985 situation, it is estimated that over the projection period, 3,700 students will enter this occupation from the formal education system. Labour force re-entrants and immigrants are also significant sources of supply to the ministry.

Historically, these occupations have been dominated by men (partially due to doctrine), although a recent trend towards the ordination of women is begining to change this situation. The age structure is heavily weighted among the older age groups. At the time of the 1981 census, about 33% of all ministers were older than 54 and 5% were older than 70. The average age (48) has been fairly constant since 1971. The majority of individuals enter this occupation between the ages of 30 and 34 and begin leaving between 60 and 64.

Market Conditions and Job Prospects

Employment growth in this category was well below the average for all occupations during the 1970s, but is expected to expand at least as fast as that average between 1986 and 1995.

Over the projection period, 15,000 workers will be required to replace those who leave because of retirement or death, or to immigrate or return to school. Thirteen hundred additional new positions are anticipated.

The labour market situation for ministers is better than in the majority of other occupations, as reflected by unemployment rates.

The majority of ministers of religion work in the religious services sector and a relatively small number work in hospitals and public administration. Employment is generally stable. There are very few job losses during a recession; in fact, services that religious officers provide may increase during an economic downturn.

While some denominations are currently experiencing severe personnel shortages, others are being flooded with graduates. Because of their acquired skills and training, new graduates should encounter little difficulty in finding non-liturgical employment, such as a counsellor or social worker position.

Earnings

Rabbis' salaries are negotiated between the congregation and the rabbi, and depend on variations in the job and reputation of the rabbi and the size and location of the congregation. Starting salaries range from $18,000 to $23,000, while senior rabbis may receive over $40,000 and up to $100,000 yearly. As is the case for other clerics, most rabbis also receive additional allowances, such as a car allowance.

United Church ministers also negotiate a salary package with their congregations. As a result, their salaries vary greatly.

The average salary of Roman Catholic parish priests is about $725 per month, consisting of $345 in salary and $380 in car allowance. Room and board as well as dental and medical benefits are included.

The minimum stipend for Anglican diocesan priests in one metropolitan city is $12,700 at ordination. After seven to 10 years of service, $16,900 to $17,860 per annum is typical. Priests also receive travel allowances and dental benefits.

University Teachers 2711

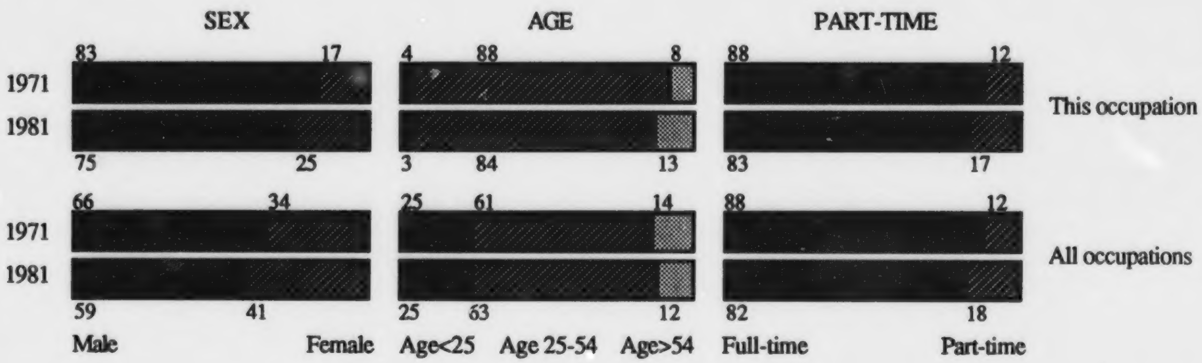
Employment Trends and Projections

	Employment			Average Annual Growth Rate (%)		
	1981	1986	1995	1971-81	1981-86	1987-95
This Occupation	30,800	34,100	39,100	3.3	2.1	1.6
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation		All Occupations
	1987-95	% of 1987 Jobs	% of 1987 Jobs
Net New Job Openings	4,600	13.4	11.1
Replacement Openings	9,800	28.4	49.2
Total Job Openings	14,400	41.8	60.3

CENSUS – 1971 and 1981 (%)



1981 CENSUS – Main Industries of Employment (%)

Services (100)
- Education (100)

Geographic Distribution of Employment – 1981 (%)

Newfoundland	1.8	Ontario	36.6
Prince Edward Island	0.3	Manitoba	4.8
Nova Scotia	4.4	Saskatchewan	3.8
New Brunswick	2.9	Alberta	9.4
Quebec	26.3	British Columbia	9.6

For further information, contact:

Canadian Association of University Business Officers
151 Slater Street
Ottawa, Ontario K1P 5N1
(613) 563-1236

Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
– College (1981-86)	4	0.5
– University (1981-86)	752	99.5
Trade Vocational Schools (1983/84 only)	0	0.0

University Teachers

2711

Job Environment

This occupational group includes all teaching positions at the university level: professor, lecturer, instructor, demonstrator and fellow. The work of full-time university teachers is diverse, extensive and demanding. Professors must prepare teaching material, give lectures, produce timely publications in their specialized area of research, continually mark student assignments, and attend the meetings of committees of the board.

Educational Background and Skills

Although the minimum educational requirement for this occupation is a master's degree, increased competition for university teaching positions has made completion of a PhD almost essential.

Nature of Supply

The primary source of new supply to this occupation is the university system. Immigration and labour force reentrants also augment the supply. Preliminary data indicate that the influx of people from related occupations will marginally exceed the movement of people out of this occupation into other areas. For many then, this occupation may be at the high end of their career ladder.

While most individuals in this occupation are men, the proportion of women has been increasing and should continue to do so. The distribution of university teachers across Canada roughly parallels the distribution of population.

The average age (41) in this occupation changed little between 1971 and 1981 according to the census; the Association of Universities and Colleges of Canada (AUCC) believes the average has increased since then. The average duration of a university teacher's career is approximately 30 years. Entry occurs between the ages of 30 and 34, and withdrawal normally takes place between ages 60 and 64.

Market Conditions and Job Prospects

Employment growth in this occupational group was well above average during the 1970s as a result of fast growth in the education sector. It has since moderated considerably. This trend will continue, because demographic and financial constraints make rapid growth in this sector improbable in the medium term. Consequently, current projections forecast employment growth at a rate only slightly faster than for the labour force as a whole. Hirings resulting from openings caused by death and retirement are expected to be slightly higher than the average for all occupations, since the experienced labour force in this field is older than average.

Labour market conditions for university teachers have been strong since 1981 because of increasing enrollments. In comparison to labour market conditions for other occupations, those for teachers rank among the most favourable.

Although employment in this occupational group is not susceptible to fluctuations in the economy, a recession could limit university funding. Seasonal variation is not a factor, as teaching is generally restricted to September through April. Technological changes in the work place would only involve teaching aids and therefore would not likely affect employment levels.

Earnings

Pay ranges in this occupational group vary according to teaching responsibilities (lecturer or full professor), years of experience and tenure, and also depend on the size of the institution. On average, pay scales range from $30.600[1] for lecturers, and $47.800 for associate professors, to $62.000 for full professors, according to the AUCC. Many university teachers augment their incomes by working on externally sponsored research projects.

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[1] Statistics Canada 1985/1986, preliminary unpublished data. These figures do not include universities in Quebec.

Elementary and Kindergarten Teachers 2731

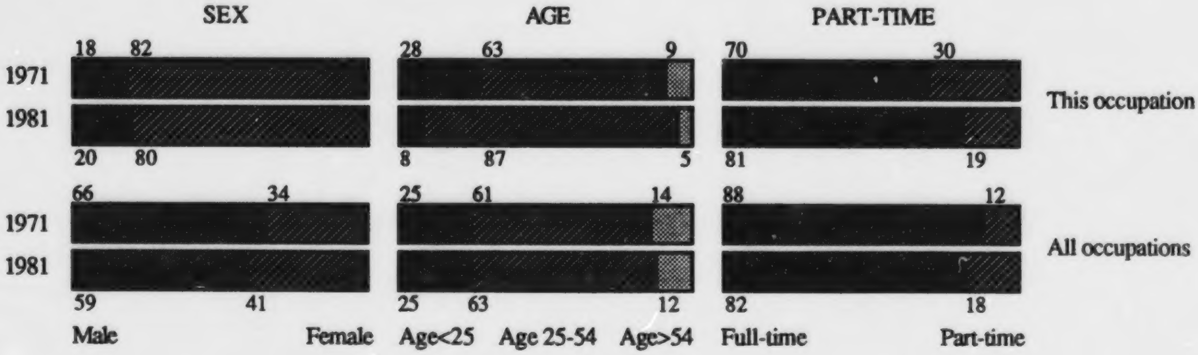
Employment Trends and Projections

	Employment 1981	Employment 1986	Employment 1995	Average Annual Growth Rate (%) 1971-81	Average Annual Growth Rate (%) 1981-86	Average Annual Growth Rate (%) 1987-95
This Occupation	164,500	178,200	202,000	1.6	1.6	1.4
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation 1987-95	This Occupation % of 1987 Jobs	All Occupations % of 1987 Jobs
Net New Job Openings	21,400	11.9	11.1
Replacement Openings	49,200	27.3	49.2
Total Job Openings	70,600	39.1	60.3

CENSUS – 1971 and 1981 (%)



1981 CENSUS – Main Industries of Employment (%)

Services (100)
- Education (100)

Geographic Distribution of Employment – 1981 (%)

Newfoundland	2.7	Ontario	39.0
Prince Edward Island	0.5	Manitoba	4.3
Nova Scotia	3.3	Saskatchewan	4.0
New Brunswick	2.6	Alberta	8.9
Quebec	23.1	British Columbia	11.3

For further information, contact:

Canadian Teachers' Federation
110 Argyle Avenue
Ottawa, Ontario K2P 1B4
(613) 232-1505

Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
– College (1981-86)	598	7.2
– University (1981-86)	7,602	91.4
Trade Vocational Schools (1983/84 only)	119	1.4

Elementary and Kindergarten Teachers 2731

Job Environment

This occupational group includes pre-elementary (kindergarten) and elementary (grades 1 to 6) teachers. They are primarily generalists who teach children five to 12 years of age. They may teach all subjects, but in many schools there are specialists for physical education, art, music and library. In addition to teaching the basic curriculum (which varies slightly between provinces), kindergarten teachers have the responsibility of developing attention skills, of helping the children acquire personal and social habits and of stimulating them to ask questions, discover answers and learn how to cope with problems. Accordingly, they prepare and present lessons geared to individual needs. At this level, students frequently need remedial or extra help. As trends toward the integration of exceptional pupils into mainstream classes progress, elementary and kindergarten teachers will be called upon to acquire additional specialized teaching skills to deal with these pupils. Teachers monitor their pupils' progress and discuss their needs with parents and other educational professionals. Their day is often prolonged by participation in extra-curricular activities.

Educational Background and Skills

Becoming an elementary or kindergarten teacher requires, at the minimum, the successful completion of Bachelor of Education studies. In some provinces, this is normally achieved by direct entry from secondary school into a four-year Bachelor of Education university program. In other provinces, a university undergraduate degree is first obtained followed by a one-year Bachelor of Education program. In each province, certification is required to teach in the public school system. Teachers who wish to move to another province are not guaranteed that their teaching certificate will be valid there, although there are a number of agreements in place wherein certification from another province is recognized.

Prospective elementary school and kindergarten teachers must have a genuine interest in children and be able to instill the desire to learn. They also require a high level of energy to meet the many time demands and pressures placed on teachers.

Nature of Supply

The main source of new supply is the formal post-secondary education system. Other sources of supply include labour force re-entrants and, to a lesser extent, immigrants. Preliminary estimates indicate that the number of people who leave this occupation to enter a related one will marginally exceed the number entering the occupation from others.

The majority of kindergarten and elementary teachers continue to be women, with relatively few men entering the occupation. The average age has increased from 35 in 1971 to 39 in 1985. A typical career spans 25 to 30 years, and normally begins when the teacher is between the ages of 25 and 29.

Market Conditions and Job Prospects

During the 1970s, employment growth in this occupational group was below average, but it has since increased to slightly above the overall average rate. Elementary teachers can expect average employment growth up to 1995. Hiring resulting from the replacement of teachers lost through death and retirement is expected to be below average.

Current labour market conditions for elementary teachers have improved slightly over the last couple of years, as reflected by more favourable unemployment insurance claimant figures. As the children of the current baby boom move into elementary school, the demand for elementary teachers will increase and employment should rise. Provincial funding, however, will also be a determining factor in employment growth.

Part-time work exists in the form of supply teaching and specialty teaching (music, art, etc.). While technological change is improving teaching methods (computers, advanced teaching guides) it is not expected to affect employment patterns.

Career advancement for teachers lies in administrative areas, where promotion is possible to positions as department head, principal or school board official.

Earnings

In most provinces, basic salary scales and fringe benefits are the result of negotiations between the teachers' association and government representatives. Average salaries for elementary school teachers in 1986 were reported[1] as follows:

Newfoundland	$30,295
Prince Edward Island	31,286
Nova Scotia	37,368
Ontario	37,679
New Brunswick	32,412
Manitoba	35,318
Saskatchewan	33,583
British Columbia	37,500
Yukon	43,578
Northwest Territories	43,383

The National Graduate Survey reports average salaries of $24,436 for 1982 university graduates in full-time positions in 1984.

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[1] Statistics Canada, *Characteristics of Teachers in Public Elementary and Secondary Schools*, 1985-1986.

Secondary School Teachers 2733

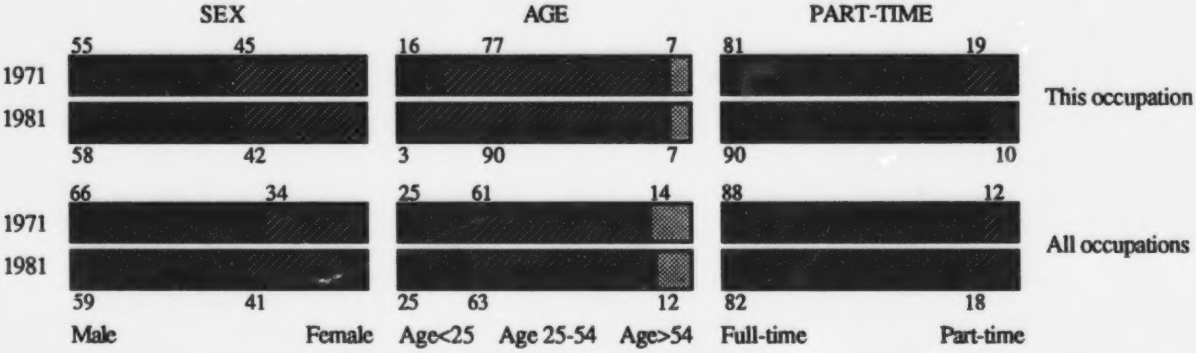
Employment Trends and Projections

	Employment 1981	Employment 1986	Employment 1995	Average Annual Growth Rate (%) 1971-81	Average Annual Growth Rate (%) 1981-86	Average Annual Growth Rate (%) 1987-95
This Occupation	131,000	145,500	164,200	2.0	2.1	1.4
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation 1987-95	This Occupation % of 1987 Jobs	All Occupations % of 1987 Jobs
Net New Job Openings	17,000	11.5	11.1
Replacement Openings	36,800	25.0	49.2
Total Job Openings	53,800	36.6	60.3

CENSUS – 1971 and 1981 (%)



1981 CENSUS – Main Industries of Employment (%)

Services (100)
- Education (100)

Geographic Distribution of Employment – 1981 (%)

Newfoundland	2.2	Ontario	32.1
Prince Edward Island	0.4	Manitoba	4.0
Nova Scotia	3.9	Saskatchewan	3.8
New Brunswick	2.9	Alberta	8.4
Quebec	31.9	British Columbia	10.2

For further information, contact:

Canadian Teachers' Federation
110 Argyle Avenue
Ottawa, Ontario K2P 1B4
(613) 232-1505

Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
– College (1981-86)	28	0.6
– University (1981-86)	4,665	99.4
Trade Vocational Schools (1983/84 only)	0	0.0

Secondary School Teachers

2733

Job Environment

Teachers in this occupational group provide instruction to young people in junior and senior high school (grades 7 to 13). Like teachers at the other levels, this group is responsible for providing a basic curriculum of courses. However, most if not all teach subjects in which they are trained specialists, such as math, science, languages and technical subjects.

Secondary school teachers must spend time researching their subjects, preparing background materials for lessons, and deciding how to present topics so as to stimulate student interest. They frequently become involved in extracurricular activities. Teachers occasionally must work an extended work week. On the other hand, time off is ample, including specific school holidays and the summer months.

Educational Background and Skills

Employment in this occupation usually requires successful completion of a Bachelor of Education program. Other provinces require varying qualifications in addition to a Bachelor of Education program. In Ontario, this is normally preceded by a university degree. Provincial certification is required to teach in the public school system. Teachers who wish to move to another province are not guaranteed their teaching certificate will be valid there, although there are a number of agreements in place wherein certification from another province is recognized. Teachers must have a genuine interest in young people and the ability to instill in them a desire to learn.

Nature of Supply

The primary source of new supply to this occupation is the formal post-secondary education system. Labour force re-entrants and immigrants are other sources of new supply. Although the movement of people between occupations can not be measured precisely, over the projection period, the number moving into this occupation from related ones is expected to exceed marginally the number leaving it for other occupations.

The majority of secondary school teachers are men, although the proportion of women in this occupation is greater than the overall occupational average. The average age of individuals in this occupation rose from 35 years of age in 1971 to 41 in 1985. As well, the number of teachers aged 25 to 54 rose substantially.

Entrance into this occupation normally occurs between the ages of 25 and 29, and most retirements take place between the ages of 55 and 59, for an average career of 25 to 30 years.

Market Conditions and Job Prospects

In the 1970s, employment growth among secondary school teachers was below the average occupational rate. Over the forecast period it is expected to maintain its current growth pattern, which is similar to the overall average. Given the current demographic situation, the demand for secondary teachers should increase in the last few years of the forecast period.

Current labour market conditions show that secondary school teachers have a lower ratio of unemployment insurance claimants than elementary teachers. This may reflect current demographics and differences in teacher supply.

As at all teaching levels, there is some part-time work but no structured summer employment in this classification. Career advancement for teachers lies in the school's administrative hierarchy, where promotion into the positions of department head and co-ordinator is the natural progression. Hiring resulting from replacement of teachers lost through death and retirement is expected to be average, since the age structure for secondary teachers is similar to the overall occupational average. On the other hand, strong attachment to the teaching profession will lower the rate of replacement openings.

Earnings

Elementary and secondary school teachers are generally paid according to the same salary scale. Average salaries for secondary teachers are higher, however, because these teachers frequently have more years of training and experience. A breakdown of average salaries by province for 1985 was reported as follows:[1]

Newfoundland	$33,454
Prince Edward Island	32,977
Nova Scotia	38,063
Ontario	42,701
New Brunswick	35,153
Manitoba	38,483
Saskatchewan	36,025
British Columbia	41,000
Yukon	45,935
Northwest Territories	47,482

The 1984 National Graduate Survey cites average full-time earnings of $27,207 for 1982 graduates with a university degree.

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[1] Statistics Canada, *Characteristics of Teachers in Public Elementary and Secondary Schools*, 1984-1985

Community College and Vocational School Teachers 2791

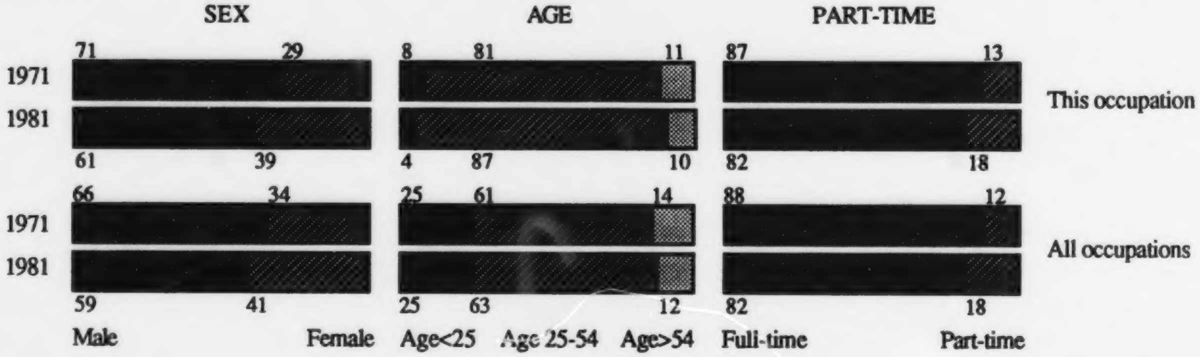
Employment Trends and Projections

	Employment			Average Annual Growth Rate (%)		
	1981	1986	1995	1971-81	1981-86	1987-95
This Occupation	27,900	34,700	39,800	12.5	4.5	1.6
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation		All Occupations
	1987-95	% of 1987 Jobs	% of 1987 Jobs
Net New Job Openings	4,700	13.3	11.1
Replacement Openings	6,500	18.5	49.2
Total Job Openings	11,200	31.8	60.3

CENSUS – 1971 and 1981 (%)



1981 CENSUS – Main Industries of Employment (%)

Services (96)	Public Administration (3)
- Education (94)	- Federal Admin (2)
	- Provincial Admin (2)

Geographic Distribution of Employment – 1981 (%)

Newfoundland	2.7	Ontario	31.9
Prince Edward Island	0.5	Manitoba	2.7
Nova Scotia	3.4	Saskatchewan	1.8
New Brunswick	2.4	Alberta	8.0
Quebec	35.3	British Columbia	11.1

Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
- College (1981-86)	77	6.9
- University (1981-86)	1,031	93.1
Trade Vocational Schools (1983/84 only)	0	0.0

Community College and Vocational School Teachers 2791

Job Environment

Community college instructors teach courses in a broad range of fields at the post-secondary and trade/vocational levels, including courses in medical and dental services, secretarial science and business, community and social services and behavioural science, electronics, engineering trades, arts, aircraft and heavy duty mechanics, and construction trades. Although the specific duties of college and vocational instructors vary with the teaching mandate, the size of the school, subject area and level of instruction, there are some similarities in general duties and responsibilities. Most instructors spend their work day teaching classes by means of lectures, demonstrations or lab work. Instructors in the skill-training programs employ a hands-on approach, supervising their students in independent or group projects. Other duties resemble those performed by teachers at other levels, such as preparing lessons and marking assignments and exams. After acquiring experience, instructors may advance to positions as department or program head, which involve supervisory and administrative duties.

Educational Background and Skills

Between 13 and 16 years of formal schooling are necessary for employment in this occupation, including two to four years of specific preparation in the field of specialization. In addition, several years of work experience as well as courses in education are considered to be assets and are almost essential.

Nature of Supply

The formal post-secondary school system provides the primary source of new supply to this occupation. Additional sources include labour force re-entrants, military personnel and immigrants.

Most college instructors are men, although between 1971 and 1981, the percentage of women grew significantly; this trend is expected to continue. The majority of instructors work in Quebec and Ontario.

The average age (39) in this occupation has remained relatively stable since 1971. The age structure has shifted, however, augmenting the number of teachers in the 25-to-54 age group. A typical career lasts, on average, 30 years, with entry to the occupation normally occurring between the ages of 30 and 34.

Market Conditions and Job Prospects

In the 1970s, employment growth among community college teachers was phenomenal, increasing at an average annual rate of 12.5%. This was a direct result of the amazing increase in college enrollment and overall growth in the number of institutions. Now that expansion in these areas has leveled, employment growth should continue at a fairly moderate rate during the forecast period.

Current labour market conditions reveal a lower-than-average number of unemployment insurance claimants. Hirings resulting from deaths and retirements in this work force are expected to parallel the overall occupational average, and should account for the majority of job vacancies up to 1995.

Part-time employment is available in this occupation. Instructors may be hired for several semesters or on short-term contracts. Although seasonality is a structured characteristic of the occupation, it is not nearly as pronounced as at the elementary or secondary teaching levels, since many community college and technical institutions offer summer courses. Technological changes affecting this occupation are improving teaching methods through the application of computers and, in a technical setting, specific technical machinery. However, as in other areas of teaching, these changes are not expected to alter employment patterns.

Earnings

In 1984-1985, community college teachers in Canada earned between $29,000 and $42,000. Salaries, of course, depend on qualifications, experience and location. The following table compares the salaries of community college teachers in all provinces except Quebec.[1]

Newfoundland	$37,600
Prince Edward Island	32,400
Nova Scotia	36,000
New Brunswick	35,900
Ontario	41,300
Manitoba	37,800
Saskatchewan	38,200
Alberta	38,200
British Columbia	41,700

The 1984 National Graduate Survey reports that the average salaries of 1982 university graduates working full-time was $27,702, and $16,114 for community college graduates.

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[1] Statistics Canada, Catalogue 81-254, 1984-1985.

Teachers of Exceptional Students 2795

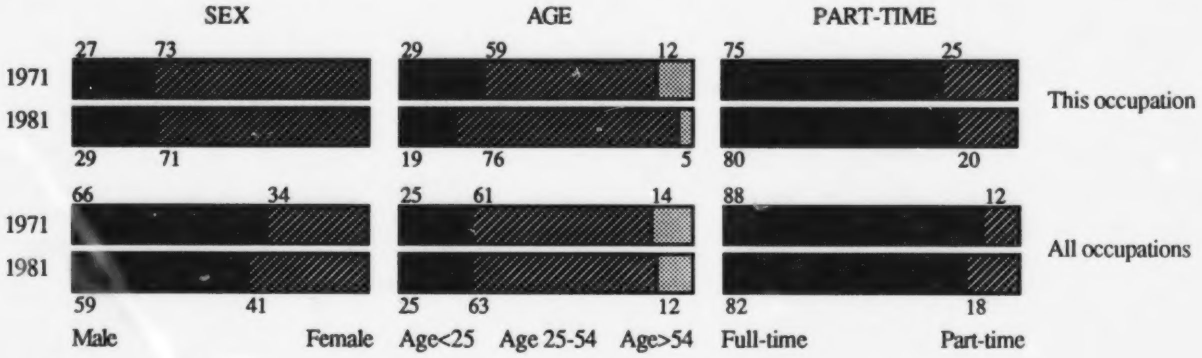
Employment Trends and Projections

	Employment			Average Annual Growth Rate (%)		
	1981	1986	1995	1971-81	1981-86	1987-95
This Occupation	20,200	24,000	26,800	13.8	3.6	1.3
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation		All Occupations
	1987-95	% of 1987 Jobs	% of 1987 Jobs
Net New Job Openings	2,500	10.5	11.1
Replacement Openings	2,800	11.5	49.2
Total Job Openings	5,300	22.0	60.3

CENSUS – 1971 and 1981 (%)



1981 CENSUS – Main Industries of Employment (%)

Services (96)
- Education (60)
- Oth Health Services (26)
- Hospitals (7)

Public Administration (3)
- Provincial Admin (3)

Geographic Distribution of Employment – 1981 (%)

Newfoundland	2.5	Ontario	28.7
Prince Edward Island	0.3	Manitoba	2.7
Nova Scotia	2.5	Saskatchewan	2.2
New Brunswick	2.0	Alberta	7.0
Quebec	43.9	British Columbia	8.3

For further information, contact:

Canadian Teachers' Federation
110 Argyle Avenue
Ottawa, Ontario K2P 1B4
(613) 232-1505

Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
- College (1981-86)	441	21.7
- University (1981-86)	1,563	76.8
Trade Vocational Schools (1983/84 only)	30	1.5

Teachers of Exceptional Students

2795

Job Environment

This category of teachers works with blind and hearing-impaired students, mentally and physically disabled students, as well as gifted students. They evaluate the unique needs and abilities of their students in order to tailor the best teaching methods and educational programs to them. These teachers adapt the curriculum to the special needs of the students.

The average class size is much smaller than standard classes. Special education curriculum stresses the basic academic criteria, adapted to the constraints of various student skills. The trend in special education teaching is to integrate the students into regular schools and classes, with special educators acting in advisory roles.

Educational Background and Skills

The minimum requirement to enter this occupation is the basic teaching qualification, a bachelor's degree in education. In addition, degrees in special education or specialized courses are usually required. Most individuals entering this occupation have educational backgrounds in elementary/secondary teaching, educational counselling, physical education and psychology. Although provincial certification is compulsory for teaching in the public school system, teachers who move from one province to another have no guarantee that their teaching certificate will be valid in the new province. This situation is changing, however, as a result of reciprocal provincial agreements allowing freer interprovincial mobility for teachers.

People in this occupational group must have a genuine interest in guiding, motivating and aiding the exceptional student's development to a higher level of learning and achievement.

Nature of Supply

The main source of new supply into this occupation is the formal post-secondary school system. A smaller source are re-entrants into the labour force and immigrants.

The occupation continues to be predominately female. The majority of the individuals within this occupation reside in Quebec and Ontario. The average age (33) has remained fairly stable since 1971. However, the increased number of people within the 25-to-54-year age group indicates a shift in the age structure A typical career lasts, on average, 30 years, with people starting out between the ages of 25 and 29.

Market Conditions and Job Prospects

Employment growth over the period 1971 to 1981 within this occupational group was well above the average for all occupations, and it has grown even faster since then. Projections indicate that the employment growth from 1987 to 1995 will still be above the occupational average, but not as expansive as in previous years. The trend towards putting special needs students into regular classrooms, with special education teachers acting as advisors, would tend to reduce the projections of employment growth for this group, as their functions will increasingly be carried out by regular elementary and secondary school teachers.

Most of the new job openings expected over the projection period will be as a result of new growth, with a smaller proportion resulting from retirements, withdrawals from the labour force and deaths.

The labour market conditions for this occupation have improved in recent years as indicated by the low number of teachers claiming unemployment insurance. The incidence of part-time employment is higher in this occupation than the overall occupational average.

Physicians and Surgeons 3111

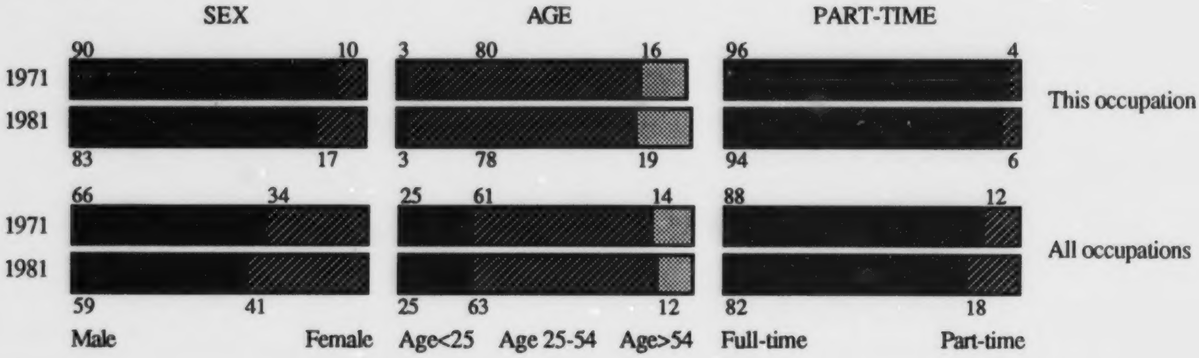
Employment Trends and Projections

	Employment 1981	Employment 1986	Employment 1995	Average Annual Growth Rate (%) 1971-81	Average Annual Growth Rate (%) 1981-86	Average Annual Growth Rate (%) 1987-95
This Occupation	47,500	55,000	62,000	3.6	3.0	1.3
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation 1987-95	This Occupation % of 1987 Jobs	All Occupations % of 1987 Jobs
Net New Job Openings	6,000	10.7	11.1
Replacement Openings	20,000	35.7	49.2
Total Job Openings	26,000	46.4	60.3

CENSUS – 1971 and 1981 (%)



1981 CENSUS – Main Industries of Employment (%)

Services (97)
- Oth Health Services (64)
- Hospitals (28)
- Education (4)

Public Administration (2)
- Provincial Admin (2)

Geographic Distribution of Employment – 1981 (%)

Newfoundland	1.9	Ontario	35.9
Prince Edward Island	0.4	Manitoba	3.9
Nova Scotia	3.8	Saskatchewan	3.1
New Brunswick	1.6	Alberta	7.8
Quebec	28.8	British Columbia	12.8

For further information, contact:

Health and Welfare, Canada
Health Information Division
Room 1364
Brooke-Claxton Building
Ottawa, Ontario K1A 0K9
(613) 957-3076

*Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
– College (1981-86)	0	0.0
– University (1981-86)	882	100.0
Trade Vocational Schools (1983/84 only)	0	0.0

*Excludes persons whose hospital internship/residency extends beyond two years.

Physicians and Surgeons

3111

Job Environment

For years medicine has been regarded as one of the most prestigious and challenging of professions. Attractive features of this career include autonomy, job satisfaction, high income and security. The majority of physicians are generalists, who perform medical examinations, diagnose and treat people suffering from disease and injuries and provide advice on preventing disease and keeping fit. In recent years an increasing number of physicians have been specializing in one of about 30 specialties, the largest of which are surgery, internal medicine, obstetrics and gynaecology, anaesthesiology, paediatrics, psychiatry, dermatology, ophthalmology, cardiology, radiology, laboratory medicine and orthopaedic surgery. Practising physicians work long hours, often under stress.

Educational Background and Skills

Persons wishing to enter the medical profession must be prepared to make a long-term commitment to learning and education prior to formal practice and throughout their professional career. Prerequisites for acceptance by Canadian medical training facilities may include two to four years of university training (including courses in chemistry, biology and physics) and passing of the Medical College Admission Test. The medical program itself lasts three to five years, depending on the student's qualifications and the province of study. After formal instruction follows a minimum one-year internship in a hospital in preparation for the general practice licensure exam. All physicians and surgeons in Canada require a licence to practise. To specialize, candidates must train three to seven additional years in residence, and pass the appropriate certification exam set by the Royal College of Physicians and Surgeons of Canada or the Corporation professionnelle des médecins du Québec.

Nature of Supply

The primary source of new physicians and surgeons is the formal education system, although foreign physicians entering Canada each year account for a relatively high proportion of new doctors.

Most physicians begin active practice between the ages of 25 and 34, with retirement from the profession starting around age 55, suggesting a minimum career length of 20 to 30 years. Cessation of active practice can signify either actual retirement, or re-employment in any one of many related fields, such as education or hospital administration. The female proportion of this labour force increased dramatically between 1971 and 1981, a trend which should continue as more women enroll in medical programs. In 1985, approximately 40% of Canada's medical students were women.

Market Conditions and Job Prospects

The rate of employment growth in this profession has been about the same as the average for all other occupations, but is expected to slow down during the projected period, according to the outlook for hospitals and health services. The rate will still remain the same as the average rate for the labour market as a whole. The Federal/Provincial Advisory Committee on Health Human Resources is projecting a surplus of physicians by the year 2000, although 24,000 new physicians will be needed for replacement positions alone over the next eight years.

Because physicians have tended to cluster in urban areas, some remote and rural locations have experienced a severe shortage of medical personnel, while some cities have experienced surpluses. To remedy this, most provinces have incentive programs that offer special privileges and higher incomes to physicians who are prepared to establish practices in remote or underserved areas. However, at least one province (British Columbia) imposes some restrictions on physician billing numbers; other provinces are considering similar practices. This could decelerate employment growth. The growth of the older segment of the population and the development of new medical techniques, drugs, devices and procedures are causing changes in the number and the mix of specialists. For example, more geriatrics specialists are now needed.

The employment of physicians is relatively well insulated from seasonal forces and fluctuations in the business cycle. Although the incidence of part-time work increased between 1971 and 1981, it remains minor.

Earnings

Most doctors' incomes are tied to provincial health insurance programs and depend on the doctor's volume and mix of services, the length of the work week, the specialization and the location of the practice. While net incomes may be well above the average worker's, 40% or more of a physician's gross income is spent on overhead items such as staff, stock, capital equipment and office space. Because doctors are independently operating professionals, they do not have employment benefits such as a company pension, disability insurance or a dental plan.

According to the Health Information Division of Health and Welfare Canada, physicians' net professional incomes varied from $77,000 to over $100,000, for an average of $96,000 in 1985. Interns earn about $28,000 per year, while residents earn from $31,000 to $41,000 per year.

Dentists

3113

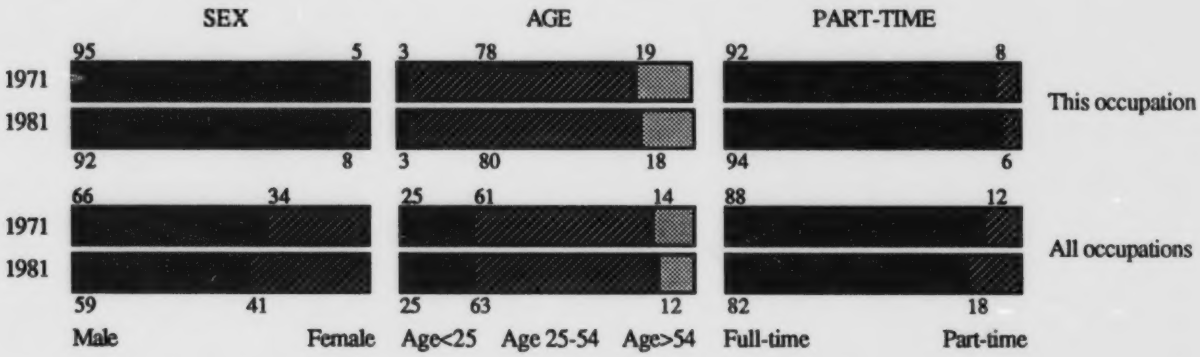
Employment Trends and Projections

	Employment 1981	 1986	 1995	Average Annual Growth Rate (%) 1971-81	 1981-86	 1987-95
This Occupation	11,200	12,600	12,600	4.8	2.4	0.0
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation 1987-95	 % of 1987 Jobs	All Occupations % of 1987 Jobs
Net New Job Openings	0	0.0	11.1
Replacement Openings	4,200	33.3	49.2
Total Job Openings	4,200	33.3	60.3

CENSUS – 1971 and 1981 (%)



1981 CENSUS – Main Industries of Employment (%)

Services (98)
- Oth Health Services (96)
- Hospitals (2)

Public Administration (2)
- Federal Admin (1)

Geographic Distribution of Employment – 1981 (%)

Newfoundland	1.1	Ontario	41.2
Prince Edward Island	0.3	Manitoba	3.6
Nova Scotia	2.8	Saskatchewan	2.4
New Brunswick	1.6	Alberta	10.7
Quebec	21.3	British Columbia	14.5

Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
– College (1981-86)	0	0.0
– University (1981-86)	455	100.0
Trade Vocational Schools (1983/84 only)	0	0.0

For further information, contact:

Alberta Dental Association
Suite 101
8230 – 105 Street
Edmonton, Alberta T6E 5H9
(403) 432-1012

The Royal College of Dental Surgeons of Ontario
230 St. George Street
Toronto, Ontario M5R 2N5
(416) 961-6555

Dentists

3113

Job Environment

Dentists are as concerned with patient education and the prevention of oral disease as they are with the examination, diagnosis and treatment of diseases, injuries and malformations of the teeth and tissues of the mouth. While 90% of dentists are general practitioners, the number entering specialty practice has increased marginally in recent years. There are nine recognized dental specialties in Canada: paedodontics, orthodontics, periodontics, oral surgery, endodontics, public health, prosthodontics, oral pathology and oral radiology. Most dentists work in private practice, although an increasing proportion are opting for group practice. In both private and group practice, dentists employ auxiliary personnel, such as dental hygienists, nurses, assistants and technicians. Other employment opportunities for dentists include positions in hospitals and educational institutions, public health units and community health programs.

Educational Background and Skills

In all provinces, dentists must be licensed to practise. Entry to dental school requires anywhere from one to three years of pre-dental university study, followed by a dental aptitude test. A four-year dentistry program leads to a degree as either Doctor of Dental Surgery or Doctor of Dental Medicine. In some provinces, licence renewal is subject to continuing education requirements. Advanced degrees are available for practitioners and students wishing to enter specialty practice, teaching or research. In recent years, the number of graduations from basic dentistry programs has risen. This pattern of growth is expected to continue in the short term. Eventual declines are forecast, as some schools have taken measures to reduce student enrollment.

Nature of Supply

Graduates of dental programs are the major source of new dentists in Canada. Other sources of supply, such as immigrants, re-entrants from the household sector and workers from other occupations, are not significant.

Most dentists become licensed between the ages of 25 and 35, and do not begin to leave active practice in significant numbers until retirement at age 60. This suggests a normal career length of at least 25 years. Dentists are not concentrated regionally, although a surplus has been reported in urban Canada. Rural areas and small communities are no longer reporting difficulties in attracting dentists.

Market Conditions and Job Prospects

Employment growth has been strong for dentists since the early 1970s, both in relation to the labour force as a whole, and in comparison with growth among physicians and surgeons. However, the employment rate is expected to decline over the next eight years and will no longer match the overall occupational average. According to the Canadian Dental Association, additions to employment of dentists would represent a surplus situation, since a growing number of dentists will actually be sharing a total workload that is expected to change very little over the next eight years. Accordingly, only 4,200 dentists will be required for replacement openings.

The demand for dental services will be positively influenced by a number of factors in the years to come. Among these are improved dental health, allowing more people to keep their teeth longer; expanding coverage under dental insurance plans; more regular dental care; and improved public awareness of dental health maintenance. However, improved decay preventative measures and the use of auxiliary dental personnel are expected to neutralize the employment growth potential for dentists.

As with any profession in which self-employment predominates, unemployment among dentists is virtually nonexistent. Job vacancies as a proportion of the number employed are marginally higher for dentists than for the general labour force. Dental employment is generally insensitive to prevailing economic conditions. The proportion of full-time dentists rose during the 1970s, contrary to the trend in the general labour force. Currently, 94% of dental personnel work full-time.

Earnings

Dentist incomes can vary considerably, depending upon the type and location of practice, hours of work, use of auxiliary personnel and facilities available. According to Revenue Canada data, in 1984 the net after-tax annual income of self-employed dentists ranged from $60,000 in Prince Edward Island to almost $90,000 in Saskatchewan. Dentists employed by the federal government earned from $43,795 to $65,367 in 1986-1987 (Pay Research Bureau, January 1987). The income of general practitioners is generally lower than for specialists. Two years after graduation, the earnings of 1982 graduates employed full-time in dentistry approximated $59,000.

Veterinarians 3115

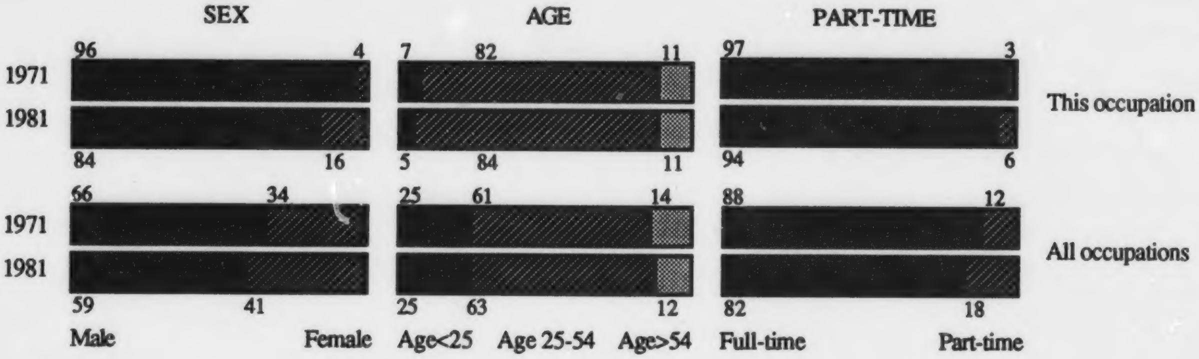
Employment Trends and Projections

	Employment 1981	Employment 1986	Employment 1995	Average Annual Growth Rate (%) 1971-81	Average Annual Growth Rate (%) 1981-86	Average Annual Growth Rate (%) 1987-95
This Occupation	3,300	3,500	3,600	7.0	0.8	0.6
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation 1987-95	This Occupation % of 1987 Jobs	All Occupations % of 1987 Jobs
Net New Job Openings	200	5.3	11.1
Replacement Openings	1,300	37.3	49.2
Total Job Openings	1,500	42.6	60.3

CENSUS – 1971 and 1981 (%)



1981 CENSUS – Main Industries of Employment (%)

Agriculture (83) – Agriculture, Paid (47) – Agriculture, Other (36)	Public Administration (11) – Federal Admin (8) – Provincial Admin (4)	Services (4) – Education (3)

Geographic Distribution of Employment – 1981 (%)

Newfoundland	0.3	Ontario	36.7
Prince Edward Island	1.0	Manitoba	3.7
Nova Scotia	2.2	Saskatchewan	6.3
New Brunswick	1.3	Alberta	15.9
Quebec	23.2	British Columbia	8.8

Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
– College (1981-86)	0	0.0
– University (1981-86)	156	100.0
Trade Vocational Schools (1983/84 only)	0	0.0

Veterinarians

3115

Job Environment

A veterinarian's prime concern is the prevention, diagnosis and treatment of disease and injury in animals. Most veterinarians (more than 80% in 1981) are employed in private practice, although group practices are becoming increasingly common in response to escalating start-up and operating costs. Veterinarians in urban areas usually treat small animals, mainly dogs and cats, whereas veterinarians in farming and rural communities deal primarily with agricultural animals. Rural practices have become more sophisticated in the past few decades to meet the changing needs of large farm operations. Although rural veterinarians may still respond to emergency calls, animals are often transported from the farm for scheduled surgical procedures at the vet's well-equipped, staffed animal clinic. Veterinarians also specialize in the care of horses and work in zoos, on wildlife preserves and in the fields of education, research and government (for example, in disease control and inspection).

Educational Background and Skills

A career in veterinary science begins with a Doctor of Veterinary Medicine (DVM) degree, the minimum requirement for registration and licensure with provincial professional associations. Available at four universities, this four-year program requires two years of pre-veterinary studies at the university level, with an emphasis on the biological sciences, chemistry and physics. Registration is a mandatory condition of professional practice in each province and requires the passing of a registration exam. Continuing education and training are important in the practising veterinarian's professional career. Post-graduate studies may be required for employment in such fields as veterinary research and education.

Nature of Supply

The formal education system is the major avenue to employment in this field. Other sources of supply, such as the household sector, the military, immigration and workers from other occupations contribute relatively few veterinarians to the labour market. Current projections indicate possible declines in the number of future DVM program graduates.

At the time of the 1981 census, one of every five veterinarians was a woman, a marked increase since 1971. This trend is expected to continue. In 1984, almost 50% of the graduates of DVM programs were women. Most veterinarians begin to practise between the ages of 25 and 35. Withdrawals from this labour force seem to occur to a limited extent as veterinarians approach 50 years of age (possibly reflecting movement from actual veterinary practice to one of many related professions, such as teaching or research) and again in larger numbers after age 60.

Market Conditions and Job Prospects

The number of employed veterinarians rose significantly throughout the 1970s, the rate of growth being more than twice that of the overall occupational average. Since 1980, however, employment growth has moderated somewhat, and is currently below that for the labour force as a whole. Veterinarian employment should grow at a somewhat faster rate while remaining slightly below the average throughout the next eight years. Between 1987 and 1995, more than 1,500 new veterinarians will be needed in Canada. Roughly 200 will fill an employment position created by growth in the economy. The remainder will be needed to fill existing positions vacated by veterinarians who leave active practice.

Today, the employment situation for veterinarians is extremely favourable. Unemployment is low in comparison with the general work force, and the number of jobs available per 1,000 workers is almost six times higher than the average. The demand for veterinarians is not particularly susceptible to prevailing economic conditions. Employment tends to remain stable throughout the year, fluctuating only marginally with the seasons. Part-time employment is not common among veterinarians (in 1981, only 6% of veterinarians were employed part-time), although it has increased in recent years.

Earnings

According to the Canadian Veterinary Medical Association, salaries for veterinary graduates begin at about $25,000. The average veterinarian earns between $30,000 and $50,000 per year. Actual income levels vary with the type and location of practice, hours of work, years of experience, size of community served, employment status and patient population.

Salary ranges for veterinarians with the federal government begin at $34,304 and go up to $64,279; a middle-level position pays between $44,000 and $54,000, while a senior-level job ranges from $55,500 to $64,000.

Osteopaths and Chiropractors 3117

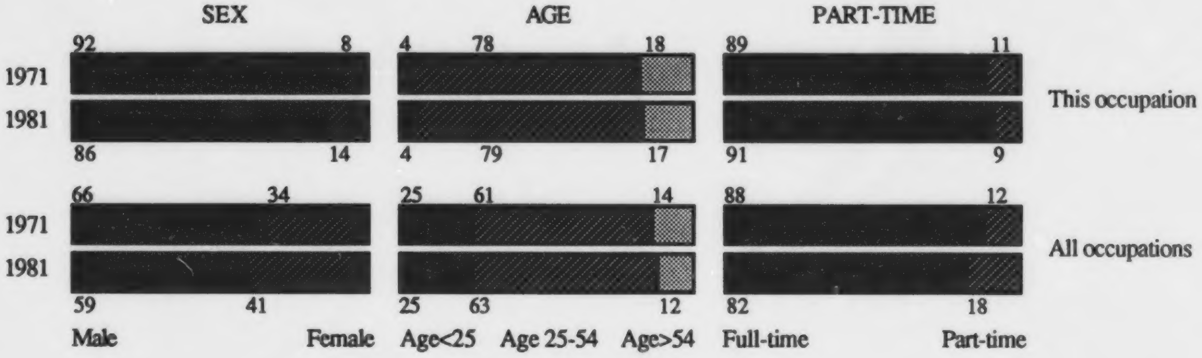
Employment Trends and Projections

	Employment			Average Annual Growth Rate (%)		
	1981	1986	1995	1971-81	1981-86	1987-95
This Occupation	2,900	3,800	4,300	7.4	5.7	1.3
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation		All Occupations
	1987-95	% of 1987 Jobs	% of 1987 Jobs
Net New Job Openings	400	11.1	11.1
Replacement Openings	1,000	26.8	49.2
Total Job Openings	1,500	37.9	60.3

CENSUS – 1971 and 1981 (%)



1981 CENSUS – Main Industries of Employment (%)

Services (100)
- Oth Health Services (99)

Geographic Distribution of Employment – 1981 (%)

Newfoundland		Ontario	42.5
Prince Edward Island	0.2	Manitoba	2.8
Nova Scotia	2.1	Saskatchewan	2.3
New Brunswick	1.1	Alberta	13.1
Quebec	23.2	British Columbia	12.4

Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
– College (1981-86)	124	100.0
– University (1981-86)	0	0.0
Trade Vocational Schools (1983/84 only)	0	0.0

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Canadian Osteopathic Association
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Health and Welfare, Canada
Health Information Division
Room 1364
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Osteopaths and Chiropractors

3117

Job Environment

Osteopaths and chiropractors work mainly in private or group practice, although some employment opportunities exist in hospitals and, for chiropractors, in the field of education or research. Like other medical professionals, chiropractors and osteopaths are concerned with the prevention, diagnosis and treatment of disease or injury. Their focus, however, is the entire person, with special attention directed either to the muscular and skeletal system (osteopaths) or the nervous system (chiropractors). In each field of practice, manipulative therapy is an important aspect of treatment. Chiropractors do not use surgery or prescription drugs, whereas osteopaths do apply traditional medical techniques. Both may employ assistants specially trained in this field. Osteopaths are few in number in Canada.

Educational Background and Skills

In most provinces, chiropractors and osteopathic physicians must be licensed to practice. For chiropractors, this requires graduation from a four-year program leading to the Doctor of Chiropractic degree (available at one Canadian location only), followed by a licensing examination. Prospective osteopathic physicians must train for four years in the United States at a school of osteopathic medicine. Licensure then requires an additional 12-month internship in Canada.

Nature of Supply

Since specialized education is required for entry into these professions, other sources of occupational supply, such as movements between occupations and immigration, add few people to the stock of chiropractors and osteopathic physicians. Licensure is usually obtained between the ages of 27 and 34, and retirements do not begin in significant numbers until age 60. This implies an average career length of 25 or 30 years (although many of these professionals work beyond the normal retirement age). People who enter chiropractic or osteopathic medicine often remain in private practice throughout their career, although both fields offer the opportunity for specialization.

Almost one-half of practitioners work in Ontario, which also has the highest number of chiropractors and osteopathic physicians per capita (partly because of the chiropractic college's Toronto location).

Market Conditions and Job Prospects

Employment growth for chiropractors was very strong throughout the 1970s and early 1980s in relation to both the labour force as a whole and more conventional areas of medical practice. Although it is expected to slacken somewhat, demand growth should continue to equal the overall occupational average and keep pace with employment in other medical fields over the next eight years. Approximately 1,400 new positions will be generated, of which about 30% should be new jobs and the remainder, replacement openings.

This demand will increase as the medical community and the general public continue to accept and take an interest in non-conventional, natural forms of health care.

Unemployment among osteopaths and chiropractors is virtually unknown, primarily because most are self-employed. Employment levels are not affected by general business cycles, since most chiropractic and osteopathic services are covered under provincial health care insurance plans. What does influence job opportunities is the student capacity of Canada's chiropractic training institution and the ability of Canadians to undertake study in the United States. To date, however, neither a shortage nor a surplus has been reported in either field. Contrary to the general labour force, this field experienced a decrease in the incidence of part-time work during the 1970s. Currently, more than 90% of osteopaths and chiropractors work on a full-time basis.

Earnings

The earnings of chiropractors and osteopaths are influenced by the hours of work, area of practice, fee levels and degree of service coverage under provincial health care insurance plans. Available data suggest that chiropractors' salaries range between $40,000 and $80,000 a year, and that earnings for osteopaths range between $50,000 and $90,000. The average 1984 earnings of 1982 graduates employed in this field full-time were approximately $39,000.

Nurses, Registered, Graduate and Nurses-in-Training 3131

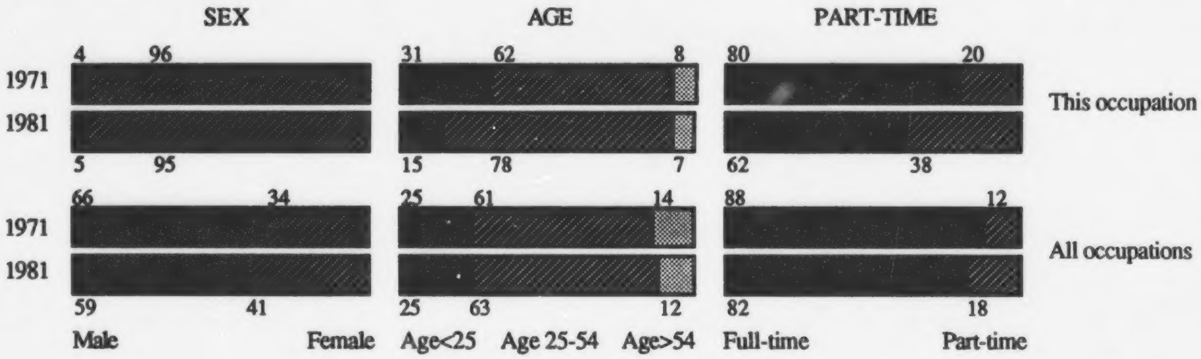
Employment Trends and Projections

	Employment			Average Annual Growth Rate (%)		
	1981	1986	1995	1971-81	1981-86	1987-95
This Occupation	146,000	163,800	180,200	5.2	2.3	0.9
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation		All Occupations
	1987-95	% of 1987 Jobs	% of 1987 Jobs
Net New Job Openings	12,600	7.5	11.1
Replacement Openings	39,800	23.8	49.2
Total Job Openings	52,400	31.3	60.3

CENSUS – 1971 and 1981 (%)



1981 CENSUS – Main Industries of Employment (%)

Services (96)	Public Administration (3)
- Hospitals (82)	- Provincial Admin (2)
- Oth Health Services (11)	
- Education (1)	

Geographic Distribution of Employment – 1981 (%)

Newfoundland	1.9	Ontario	37.1
Prince Edward Island	0.5	Manitoba	5.3
Nova Scotia	3.7	Saskatchewan	4.3
New Brunswick	2.5	Alberta	9.3
Quebec	23.4	British Columbia	11.9

Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
- College (1981-86)	6,032	77.1
- University (1981-86)	1,566	20.0
Trade Vocational Schools (1983/84 only)	224	2.9

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Health and Welfare, Canada
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Room 1364
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Nurses, Registered, Graduate and Nurses-in-Training

3131

Job Environment

Most nurses provide and supervise direct patient care. Although three-quarters of all nurses work in a hospital, many are also employed in nursing homes, rehabilitation and long-term care centres, community health clinics, physician's offices, schools and patients' homes. In general, nurses ensure the general comfort of their patients; supervise the work of nursing assistants; observe, record and report symptoms and changes in the condition of patients; give nursing advice and health counselling; and dispense medication as ordered by the physician. Nurses work closely with physicians, social workers, physiotherapists, occupational therapists, technicians, nursing assistants and psychologists. Since specialization is becoming increasingly important, many specialty nurses are found in gerontology, chronic care, surgery, psychiatry, emergency care and intensive care. Prospective nurses must expect weekend and shift work.

Educational Background and Skills

In most provinces, nurses must be registered with the provincial licensing body in order to practise. Prerequisite credentials are either a diploma in nursing, granted through a community college or hospital-based program of instruction, or a university degree in nursing. Candidates must pass a national licensing exam to attain registration. In the past, college diploma recipients have accounted for almost 90% of all nursing graduates, but this proportion has fallen in recent years as more students opt for university.

Nature of Supply

The nursing labour force is, in part, intermittent, (individuals leave to study, stay at home, travel, etc., and then return to work), making re-entrants from the household sector the major source of occupational supply other than coming directly from the formal education system.

Women predominate in this occupation; however, in recent years, the number of men has increased marginally, and current patterns of enrollment in basic nursing programs suggest this trend will continue. Most nurses enter active practice between 20 and 31 years of age, and do not start to leave the profession in significant numbers until age 60. However, taking into consideration time spent out of practice, the average nursing career totals 20 years. The geographic distribution of nurses resembles that of the general population.

Market Conditions and Job Prospects

Since the early 1970s, the demand for nurses has grown annually at a much faster average rate than for the labour force in general. During the recession in the early 1980s, demand still remained strong, while employment opportunities in most other fields declined. Projections, however, suggest that this trend is not likely to continue through to 1995. Employment opportunities for nurses may fall below the overall occupational average. Between 1987 and 1995, about 53,000 nursing positions will become available. One in every four of these will be openings created by expanding demand. The remainder will be positions vacated by existing personnel. This high rate of replacement is consistent with the high labour force withdrawal rate, and in fact levels of demand may even be higher.

Factors to take into consideration include the aging population, the increase in all-nurse hospital staffing (and the subsequent declining demand for nursing assistants, aides and orderlies), the expanding role of nurses in health care delivery, and increasing technical complexities. As in many of the health care professions, changes in employment are ultimately dependent on expenditures in the health sector. An innovation affecting employment is the automation of patient record-keeping systems. At present, nurses spend approximately 40% of their time maintaining and accessing records. Changes reducing this percentage could curb growth in nurse employment. The demand for nurses trained in specialty areas (e.g., intensive care) should, however, remain strong.

Current employment prospects for nurses are very positive. The rate of unemployment is low, and the number of reported job vacancies has increased markedly since 1983. Mild shortages exist in Ontario and British Columbia. In 1981, approximately 38% of nurses were employed on a part-time basis. This was much higher than the average for the labour force in general.

Earnings[1]

In 1984, the average annual earnings of nurses employed full-time two years after graduating from basic programs of instruction were $22,977 for university graduates and $21,050 for community college graduates. Overall, annual salaries for hospital-employed general duty and staff nurses range from approximately $20,700 to $35,200. Assistant head nurses can earn from $21,700 to $34,300 per annum, and head nurses from $23,300 to $37,000 per annum. Actual earnings will depend upon the employer, the years of experience and the province.

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[1] Canadian Nurses Association (Annual Salaries, Major Hospital Agreements), October 1986

Orderlies 3132
Nursing Attendants 3135

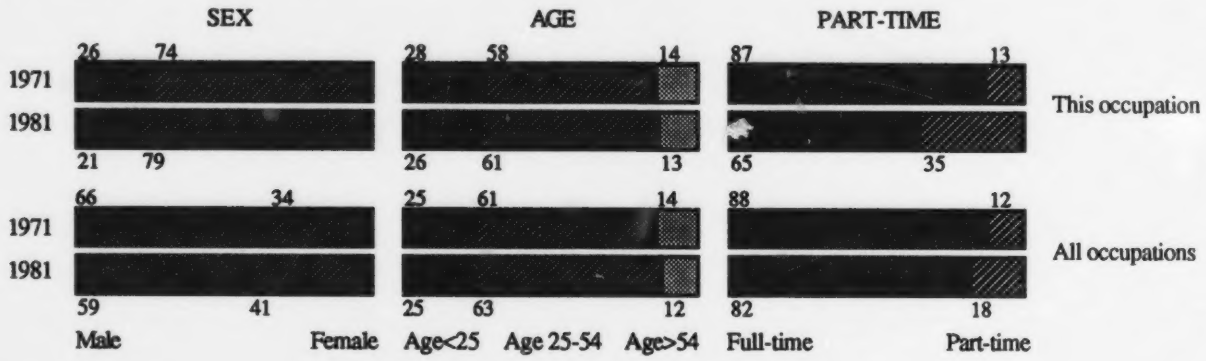
Employment Trends and Projections

	Employment			Average Annual Growth Rate (%)		
	1981	1986	1995	1971-81	1981-86	1987-95
This Occupation	76,500	87,200	96,300	1.6	2.7	1.0
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation		All Occupations
	1987-95	% of 1987 Jobs	% of 1987 Jobs
Net New Job Openings	7,100	8.0	11.1
Replacement Openings	43,500	48.7	49.2
Total Job Openings	50,600	56.7	60.3

CENSUS – 1971 and 1981 (%)



1981 CENSUS – Main Industries of Employment (%)

Services (96) – Hospitals (76) – Oth Health Services (18)	Public Administration (1)

Geographic Distribution of Employment – 1981 (%)

Newfoundland	0.7	Ontario	29.7
Prince Edward Island	0.6	Manitoba	6.4
Nova Scotia	3.3	Saskatchewan	5.4
New Brunswick	2.7	Alberta	7.4
Quebec	31.6	British Columbia	11.8

Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
– College (1981-86)	96	14.5
– University (1981-86)	101	15.2
Trade Vocational Schools (1983/84 only)	467	70.3

Orderlies 3132
Nursing Attendants 3135

Job Environment

This classification includes personal care aides, nursing aides, health care aides, hospital aides and orderlies. Nursing attendants provide practical nursing care in hospitals and residential care facilities. Tasks include answering the patient's call bell, collecting food trays, making beds, bathing patients, giving massages, helping patients in and out of bed, and transporting patients by wheelchair or stretcher. Individual duties depend on provincial regulations, the policies of the institution, the type of patient and the skills of the attendant. Orderlies assist nurses with heavy work, such as escorting patients to operating and examining rooms, and transporting and setting up heavy equipment.

Educational Background and Skills

The pre-employment educational requirements in this field vary according to the province and the needs of the employer. Secondary school graduation with a background in the basic sciences and mathematics is often the minimum acceptable level, in which case training is provided on the job under the guidance of an experienced co-worker. Some employers, however, require a relevant post-secondary program of study, available from some community colleges and trade/vocational institutes. Such a program lasts up to one year, and includes both formal classroom instruction and practical training. Admittance may require from Grade 10 up to high-school graduation. Although not always required, vocational preparation is becoming increasingly important for success in this area.

Nature of Supply

At the time of the 1981 census, almost 80% of nursing attendants were women, marginally above the 74% of 10 years earlier. The average age was 36. Most people enter this field either before reaching 29, or between the ages of 40 and 49, the majority being between 20 and 24 years. Labour force withdrawals take place between the ages of 29 and 36, and again in the late 50s. This may indicate actual retirement or movement into a related occupation, such as nursing assistant.

Market Conditions and Job Prospects

During the 1970s, employment growth in this field was significantly below the average for all occupations, a situation which improved during the first half of the 1980s, when employment expanded faster than average. This strong performance is not expected to persist throughout the next eight years, however. The rate of employment increase should moderate. Almost 50,600 job openings should be generated in this field during the projection period. One in every five of these will be new positions resulting from increased demand for nurse attendant services. The remainder will be vacancies left by nursing attendants withdrawing from the active labour force.

The projection of demand, based on current patterns of employment in this field, may be optimistic in view of technological changes in the Canadian health care system that continue to increase the skill level required by nursing attendants. While nursing attendants were primarily employed in hospitals in the past, they are now less in demand in these institutions. Employment in such areas as nursing homes and other long-term care facilities may not make up for job losses in the hospital sector.

In spite of this, unemployment among nursing attendants remains below that for the labour force as a whole, although it is currently higher than in past years. The number of job vacancies is low, particularly in relation to the size of this work force. As in other health care professions, the demand for nursing attendants is unaffected by business conditions and seasonal influences. In 1981, a high proportion of nursing attendants (35%) worked part-time.

Earnings[1]

In 1985, most hospital-employed nursing aides earned between $16,120 and $20,436 per year. Certified nursing orderlies generally earned between $18,252 and $23,504 per year, while their uncertified counterparts earned between $17,576 and $20,436 per year. In all cases, average earnings were around the mid-point in the prevailing salary range. The earnings of graduates working in this area mirror the above findings, according to the 1984 National Graduate Survey.

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[1] Labour Canada, *Wages and Working Conditions in Canada*, 1985.

Registered Nursing Assistants 3134

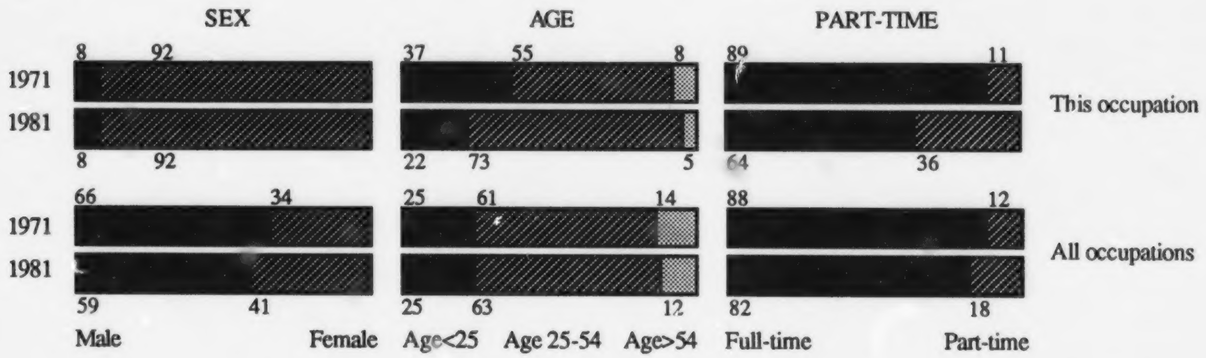
Employment Trends and Projections

	Employment 1981	Employment 1986	Employment 1995	Average Annual Growth Rate (%) 1971-81	1981-86	1987-95
This Occupation	41,700	46,800	51,400	4.8	2.3	0.9
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation 1987-95	This Occupation % of 1987 Jobs	All Occupations % of 1987 Jobs
Net New Job Openings	3,500	7.4	11.1
Replacement Openings	13,300	27.7	49.2
Total Job Openings	16,800	35.1	60.3

CENSUS – 1971 and 1981 (%)



1981 CENSUS – Main Industries of Employment (%)

Services (99)
- Hospitals (86)
- Oth Health Services (10)

Geographic Distribution of Employment – 1981 (%)

Newfoundland	4.3	Ontario	29.6
Prince Edward Island	0.7	Manitoba	2.7
Nova Scotia	4.9	Saskatchewan	2.5
New Brunswick	3.3	Alberta	6.0
Quebec	38.6	British Columbia	7.1

Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
– College (1981-86)	102	13.8
– University (1981-86)	88	11.9
Trade Vocational Schools (1983/84 only)	550	74.3

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Registered Nursing Assistants

3134

Job Environment

Nursing assistants or practical nurses are employed in hospitals, residential care facilities, occupational health units, public health clinics, doctor's offices and the homes of patients. Typical duties include taking temperature and blood pressure, giving baths, making beds, serving meals, feeding patients, collecting specimens and administering simple medical treatment and, in some jurisdictions, medication. In most positions, nursing assistants work as part of a patient care team, which may include registered nurses, physicians, physiotherapists and occupational therapists. They generally function under the direct supervision of a nurse, although they remain responsible for their own nursing actions. Weekend and shift work is normal in this career.

Educational Background and Skills

Employment as a nursing assistant requires graduation from an approved program of studies available from community colleges, trade/vocational institutes and some hospitals. These programs usually last a year and combine both technical instruction and practical experience. Admission requirements vary with the institution. Relevant high school subjects of study include the basic sciences and mathematics.

In some provinces, graduates of nursing assistant studies must pass an exam in order to register with the provincial licensing agency prior to obtaining employment. Where not mandatory, licensure may still be required by some employers. Licensure in one province may not be recognized in another.

Because of constant changes in nursing knowledge and technology, continuing education is important throughout the nursing assistant's career. Although studies in clinical specialties are possible after basic training, some prior nursing experience is recommended.

Nature of Supply

The formal education system is the major avenue of entry into this occupation, although re-entrants from the household sector are also a significant source. The military and immigration supply a small number of persons to this labour market. The majority of graduates from post-secondary programs of study who find employment in this occupation (64%), hold related trade/vocational institute certificates. The remainder have received additional instruction in other nursing areas, other health disciplines or in related fields, such as social services, social work or psychology.

Women form the majority in this occupation (92%). This percentage is marginally lower today than it was at the beginning of the 1970s, and may continue to decline, as more men choose a career in this area. The average age for all nursing assistants was 33 in 1981, slightly higher than the 1971 average. Most persons begin their career as a nursing assistant between the ages of 20 and 29. Retirements begin in small numbers at age 55, suggesting a career length of at least 25 years. According to the 1981 census, almost 40% of nursing assistants work in Quebec and approximately 30% in Ontario. The average population served by each worker varies greatly from one province to another.

Market Conditions and Job Prospects

Employment growth in this occupation was above average throughout the 1970s. Growth has slowed somewhat since 1980. This pattern is expected to persist throughout the next eight years. During the projection period almost 3,500 new employment positions will open up in this field. A further 13,000 openings are anticipated as currently employed nursing assistants leave the active work force. This brings the total requirement for new nursing assistants to almost 16,500 persons over the next eight years.

Although the employment picture for nursing assistants is positive, based on current employment patterns, this outlook could change as technology continues to make standard nursing care more complex. Some provinces and individual hospitals are decreasing their dependence on nursing assistants in favour of more nurse positions.

Unemployment among nursing assistants is traditionally below that for all occupations taken together, although job vacancies also appear to be relatively low. Most nursing assistants are employed in hospitals and related health care establishments, where employment opportunities are not affected by general economic conditions. Part-time employment in the field is high.

Earnings

Community college graduates employed full-time as nursing assistants two years after graduation earned an average annual salary in 1984 of almost $20,000. In 1985, average monthly salaries for nursing assistants in hospitals ranged from a low of $1,417 (approximately $17,000 per annum) in Newfoundland to a high of $1,933 (approximately $23,000 per annum) in Saskatchewan.

Audio and Speech Therapists 3136
Physiotherapists 3137
Occupational Therapists 3138

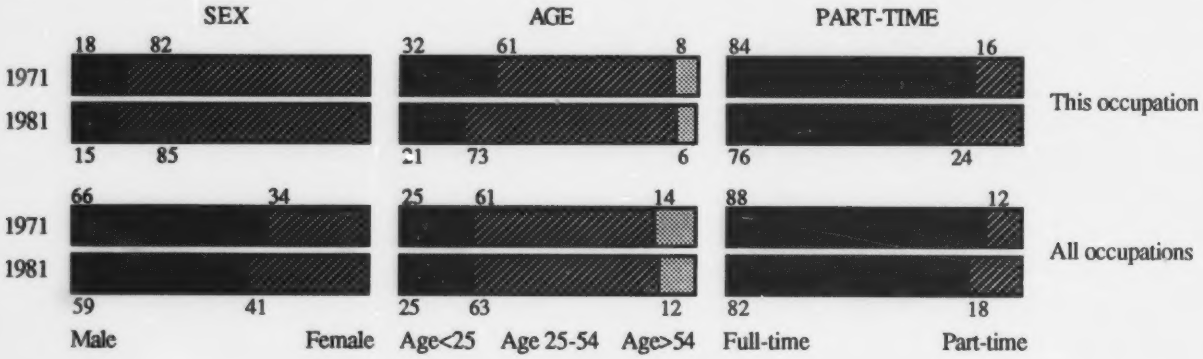
Employment Trends and Projections

	Employment			Average Annual Growth Rate (%)		
	1981	1986	1995	1971-81	1981-86	1987-95
This Occupation	13,400	15,600	17,300	8.0	3.0	1.0
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation		All Occupations
	1987-95	% of 1987 Jobs	% of 1987 Jobs
Net New Job Openings	1,400	8.5	11.1
Replacement Openings	3,300	20.7	49.2
Total Job Openings	4,700	29.1	60.3

CENSUS – 1971 and 1981 (%)



1981 CENSUS – Main Industries of Employment (%)

Services (95)
- Hospitals (63)
- Oth Health Services (24)
- Education (6)

Public Administration (5)
- Provincial Admin (4)

Geographic Distribution of Employment – 1981 (%)

Newfoundland	1.7	Ontario	36.3
Prince Edward Island	0.4	Manitoba	4.4
Nova Scotia	3.2	Saskatchewan	3.2
New Brunswick	1.3	Alberta	10.3
Quebec	24.8	British Columbia	14.7

Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
– College (1981-86)	125	13.8
– University (1981-86)	783	86.2
Trade Vocational Schools (1983/84 only)	0	0.0

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Audio and Speech Therapists 3136
Physiotherapists 3137
Occupational Therapists 3138

Job Environment

This group includes physiotherapists, occupational therapists, audiologists and speech pathologists, who give therapeutic, rehabilitative treatment to physically disabled persons. The treatment methods used by physiotherapists include therapeutic exercises in a warm bath, swimming pool or gym, application of electric currents to stimulate the muscles, ultra-violet rays and massage. Occupational therapists are responsible for treatment plans designed to develop skills, restore function, maintain abilities and promote healthy lifestyles. Audiologists assess, diagnose and treat hearing abnormalities. Among their rehabilitative techniques are hearing-aids, short-term counselling and auditory training. Speech pathologists are concerned with disorders of speech and voice.

While individual therapists may be responsible for planning a treatment program, they usually work as members of a health care team including other therapists, nurses, physicians, psychologists, social workers, educators or others. The main work setting is a hospital. Some therapists, however, practise in the patient's home, rehabilitation centres or community ambulatory clinics. Many therapists are beginning to opt for private practice.

Educational Background and Skills

The educational requirements of a therapist vary, depending on the field of practice and the province. Generally, speech pathology requires a three- or four-year bachelor's degree in speech pathology. Physiotherapists must have a bachelor's degree in physiotherapy. An occupational therapist requires a bachelor's degree in occupational therapy. Formal preparation for each of these professions may include a period of internship. In some provinces, registration is mandatory.

Nature of Supply

The formal education system is the major source of new therapists, although immigration is a significant contributor. The household sector, the military and workers from other occupations add marginally to the number of available therapists.

Almost 85% of all therapists are women. The average age in this classification was 33 in 1981, marginally below the average of 10 years earlier. In 1981, 80% of therapists were under 40. This suggests that retirements will be few in the near future. Employment generally begins between the ages of 22 and 29, and withdrawals begin in large numbers at about age 60, for an approximate career length of 30 to 40 years.

Market Conditions and Job Prospects

Employment expansion rates in this field are expected to remain high in the immediate future and should remain about average through the period leading to 1995. During these eight years, about 4,700 job openings will be created, of which two in every five will be generated by increasing demand for therapist services. The remaining positions will come open as therapists withdraw from the work force.

Job growth is not notably influenced by economic conditions. However, current trends in health care may affect employment demand in a manner unanticipated in these figures. Since rehabilitation is becoming increasingly recognized as a practical and moral alternative to institutionalized care, the need for therapists could increase.

Other positive factors include a rising elderly population, increasing public acceptance of disabled persons, and an increasing association of childhood learning problems with communication disorders. Government expenditure policy concerning the health care and education sectors is nonetheless a limiting factor.

Employment prospects for therapists are very good — there is currently a labour shortage in this field. Unemployment was extremely low in 1986, with only 2% of the labour force actively searching for work. Just over three of every four therapists are employed on a full-time basis. This rate is lower than the overall occupational average.

Earnings

Therapists' earnings vary considerably, depending on the institution, province and city of employment; field of therapy; hours of work; and years of experience. Most physiotherapists earned between $24,500 and $33,250 in 1985. The average annual earnings were $28,400. Chief physiotherapists earned between $31,000 and $43,200, the average being approximately $37,600. Starting salaries in 1985 for physiotherapists ranged from $20,149 to $30,274.[1] The wage premium paid for experience in the field varied significantly according to the province.

The Canadian Hearing Society reports that audiologists earned an annual average salary of $27,000 to $33,000 in 1986. The majority of occupational therapists earned between $24,350 and $32,800 annually in 1985, with the average approximating $28,299.

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[1] Canadian Physiotherapy Association, 1987.

Pharmacists

3151

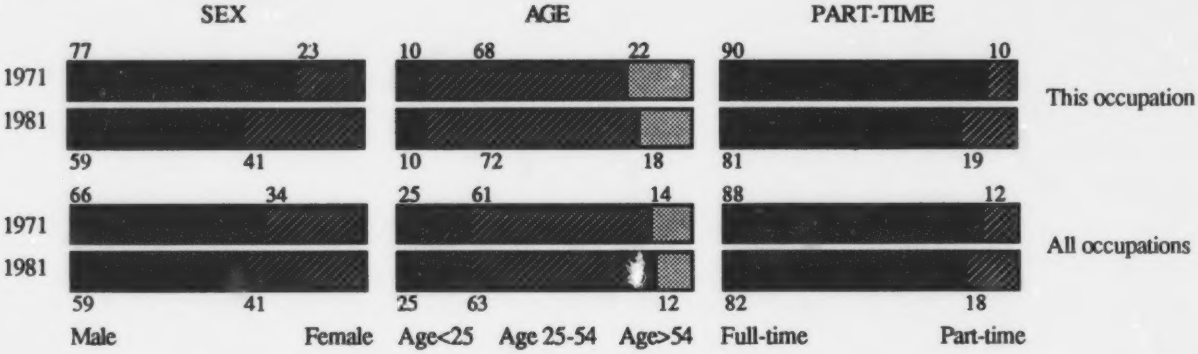
Employment Trends and Projections

	Employment 1981	Employment 1986	Employment 1995	Average Annual Growth Rate (%) 1971-81	Average Annual Growth Rate (%) 1981-86	Average Annual Growth Rate (%) 1987-95
This Occupation	13,900	15,200	16,900	3.8	1.8	0.9
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation 1987-95	This Occupation % of 1987 Jobs	All Occupations % of 1987 Jobs
Net New Job Openings	1,200	7.8	11.1
Replacement Openings	5,900	37.9	49.2
Total Job Openings	7,200	45.7	60.3

CENSUS – 1971 and 1981 (%)



1981 CENSUS – Main Industries of Employment (%)

Trade (80)
- Retail Trade (79)

Services (19)
- Hospitals (18)

Geographic Distribution of Employment – 1981 (%)

Newfoundland	1.2	Ontario	36.1
Prince Edward Island	0.2	Manitoba	4.7
Nova Scotia	4.3	Saskatchewan	4.0
New Brunswick	2.2	Alberta	9.6
Quebec	26.5	British Columbia	10.9

Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
– College (1981-86)	0	0.0
– University (1981-86)	548	100.0
Trade Vocational Schools (1983/84 only)	0	0.0

For further information, contact:

Canadian Pharmaceutical Association
1785 Alta Vista Drive
Ottawa, Ontario K1G 3Y6
(613) 523-7877

Health and Welfare, Canada
Health Information Division
Room 1364
Brooke-Claxton Building
Ottawa, Ontario K1A 0K9
(613) 957-3076

Association of Deans of Pharmacy of Canada
Faculty of Pharmaceutical Sciences
Univ. of British Columbia
Vancouver, British Columbia
V6T 1W5
(604) 228-2343

Pharmacists

3151

Job Environment

Most pharmacists work in either retail pharmacies (79% in 1981) or hospital pharmacies (18%). Their duties include preparing and dispensing prescription drugs, ensuring proper storage and handling of drugs, giving advice to customers on appropriate home and over-the-counter remedies, checking prescriptions for overdoses and drug interactions and keeping records of dispensed drugs and prescriptions. Other areas of employment are non-hospital health care services, the wholesale trade and government administration. Activities in these areas include drug inspection and research, pharmaceutical marketing and sales, and administration.

Educational Background and Skills

Pharmacists must be licensed to practise in Canada. This requires completion of a four-year Bachelor of Science in Pharmacy. In most provinces, provincial regulatory agencies also require candidates to pass an exam set by the Pharmacy Examining Board of Canada and to have some practical training before being licensed. Pharmacists who own or manage a pharmacy must also have the skills necessary to run a successful business.

Nature of Supply

Pharmacy school graduates are the major source of new professionals. In recent years, the number of graduates has declined a little. Forecasts suggest that this decrease may continue over the long term. Other sources of occupational supply, such as the military, immigration and re-entrants from the household are of little significance. Because of the educational requirements, the flow of workers into pharmacy from other occupations is minimal. However, pharmaceutical training and practice can lead to related careers in research, education, sales and administration. Success in these fields may require advanced and specialized instruction.

Female participation in pharmaceutical training programs increased dramatically during the past decade, a circumstance which has almost balanced the male/female ratio in this profession. Most pharmacists obtain their licence between the ages of 25 and 29, and do not start to leave professional practice until retirement at least 35 years later. As in most other health care occupations, pharmacists are not concentrated in any specific geographic region, although shortages are currently being reported in rural areas and small communities.

Market Conditions and Job Prospects

Between 1971 and 1981, the number of pharmacists employed in Canada rose almost 4% per year, marginally above the average for all occupations during the same period. In the years since, pharmacist employment has continued to increase at a level slightly above the overall average. Employment growth is expected to remain high through to 1995. More than 7,000 jobs will come open during the next eight years. Almost 20% of these positions will result from increased demand for pharmacist services. The remainder will be replacement openings generated as pharmacists leave the active work force.

Employment demand is moderately affected by economic conditions. However, structural and environmental changes taking place in pharmacy practice may influence employment growth. The role of the pharmacist in hospitals is expanding, a trend which could increase the demand for these professionals. On the other hand, increased employment of pharmacy dispensary assistants could have a negative effect on employment for pharmacists.

Unemployment among pharmacists is minimal and has been decreasing in recent years, owing primarily to the high number of self-employed practitioners. Conversely, the number of job vacancies has increased significantly since 1982, which corresponds to current reports of a pharmacist shortage. Whether this shortage persists depends in part on the demand trends discussed above. In 1981, approximately 81% of pharmacists were employed full-time. This was marginally below the average for all occupations.

Earnings

In 1984, full-time pharmacists who completed their university studies in 1982 earned on average $29,637. The average 1986 salary for pharmacists employed in Ontario was $41,059. On an hourly basis, average earnings ranged from $19.55 for those working in an independent pharmacy, to $21.25 for hospital employees. The average for chain and franchise employees fell between these levels (Ontario Pharmaceutical Association). The Manitoba Society of Professional Pharmacists reported hourly earnings of $11.50 to $22.50. Incomes for self-employed pharmacists in the Winnipeg/Brandon area ranged from $15,000 to $75,000 a year ($40,000 was the average), with the rural range and average being approximately 30% higher. Saskatchewan pharmacists earned on average between $30,000 and $35,700 per year.

Dietitians and Nutritionists 3152

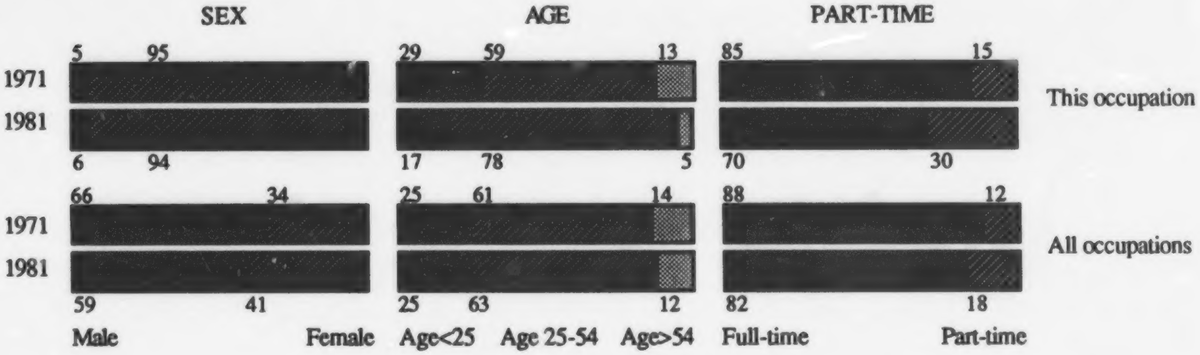
Employment Trends and Projections

	Employment			Average Annual Growth Rate (%)		
	1981	1986	1995	1971-81	1981-86	1987-95
This Occupation	3,000	3,400	3,800	6.1	2.3	1.1
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation		All Occupations
	1987-95	% of 1987 Jobs	% of 1987 Jobs
Net New Job Openings	300	8.7	11.1
Replacement Openings	1,300	36.8	49.2
Total Job Openings	1,600	45.6	60.3

CENSUS – 1971 and 1981 (%)



1981 CENSUS – Main Industries of Employment (%)

Services (89)
- Hospitals (66)
- Oth Health Services (9)
- Education (5)

Public Administration (6)
- Provincial Admin (3)
- Federal Admin (2)

Manufacturing (2)
- Food + Beverages (2)

Geographic Distribution of Employment – 1981 (%)

Newfoundland	1.6	Ontario	30.7
Prince Edward Island	0.5	Manitoba	4.0
Nova Scotia	6.7	Saskatchewan	1.8
New Brunswick	2.9	Alberta	8.1
Quebec	30.5	British Columbia	13.3

Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
– College (1981-86)	20	8.1
– University (1981-86)	226	91.9
Trade Vocational Schools (1983/84 only)	0	0.0

For further information, contact:

Manitoba Association of Registered Dieticians
320 Sherbrook Street
Winnipeg, Manitoba R3B 2W6
(204) 787-4010

Health and Welfare, Canada
Health Information Division
Room 1364
Brooke-Claxton Building
Ottawa, Ontario K1A 0K9
(613) 957-3076

Canadian Dietetic Association
Suite 604
480 University Avenue
Toronto, Ontario M5G 1V2
(416) 596-0857

Dietitians and Nutritionists

3152

Job Environment

Dietitians and nutritionists are concerned with the principles of nutrition and their application. Their duties vary according to their position and the area of employment and may include providing dietary consultation, giving lectures on nutrition, planning menus and diets, supervising institutional food service programs, teaching medical students and conducting research. Usually, dietitians work in health care and food establishments, although an increasing number are self-employed consultants. Others are employed in the education, government and manufacturing sectors.

Educational Background and Skills

Entry to this occupation generally requires high-school graduation with a background in the sciences, followed by a three- or four-year bachelor's degree in home economics or science with a major in foods or nutrition. In Manitoba and Alberta, registration with the provincial regulating agency is a mandatory condition of practice, although elsewhere, eligibility for registration may be required by some employers. Candidates for licensure must complete a one-year internship or have equivalent working experience in dietetics that is recognized by the Canadian Dietetics Association. Master's level preparation is available in this field, and may be required for some positions. As hospital settings become increasingly computerized, computer skills are becoming required.

Nature of Supply

The major source of new entrants is the formal education sector, although workers from other occupations moderately supplement the group. Immigration, the household sector and the military are of minor significance as sources of new supply.

In 1981, 94% of dietitians and nutritionists were women, a level virtually unchanged from that of a decade earlier. The average age was 33, slightly below the 1971 average of 36. Most persons enter this labour force between the ages of 25 and 29. Some may leave to work in a related field, such as food service administration, in either a hospital, public service agency or commercial enterprise. Most employment opportunities are in hospitals and other health care institutions in urban areas.

Market Conditions and Job Prospects

The average annual rate of employment growth in this field was almost twice that for the labour force as a whole throughout the 1970s. That ratio has continued since 1981. For the years leading to 1995, the job outlook in this field is about average. Projections of the demand for services in this area suggest that more than 300 new positions will be created during the next eight years. Almost 1,300 additional job openings will emerge as personnel withdraw from active employment.

Employment demand in this field is not significantly influenced by economic factors or technology. Changes currently taking place in the area of health care administration, however, could affect both overall demand and specific skill requirements: The fact that more and more hospitals are centralizing their food supply could affect demand. An emphasis on outpatient, ambulatory patient care is increasing the need for dietitians and nutritionists trained to work in public health. There is also a rising demand for specialists in critical care areas.

Despite rapid job growth, unemployment in this field currently approximates the average for all occupations. This is a recent phenomenon, however, and the number of job vacancies remains relatively high. Part-time employment is quite common in this field. In 1981, 30% of dietitians and nutritionists were working part-time, which is more than 10 percentage points above the average for all occupations.

Earnings

In 1984, two years after university graduation, full-time dietitians and nutritionists were earning an average annual salary of $24,000. Starting salaries, however, are generally about $20,000. Average annual salaries fall within the $20,000 to $30,000 range. Dietitians in management positions earn between $33,000 and $50,000 yearly. Salaries vary according to organization, institution and province, and tend to be higher in rural areas in some provinces. The following are estimated 1986 average annual salary ranges for dietitians in six provinces, and have been provided by the respective provincial associations:

Newfoundland	$20,644 – $37,196
Nova Scotia	24,000 – 45,000
Manitoba	20,000 – 31,000 (1985)
Saskatchewan	27,000 – 33,000
Alberta	31,000 – 37,000
British Columbia	26,000 – 40,000

Optometrists 3153

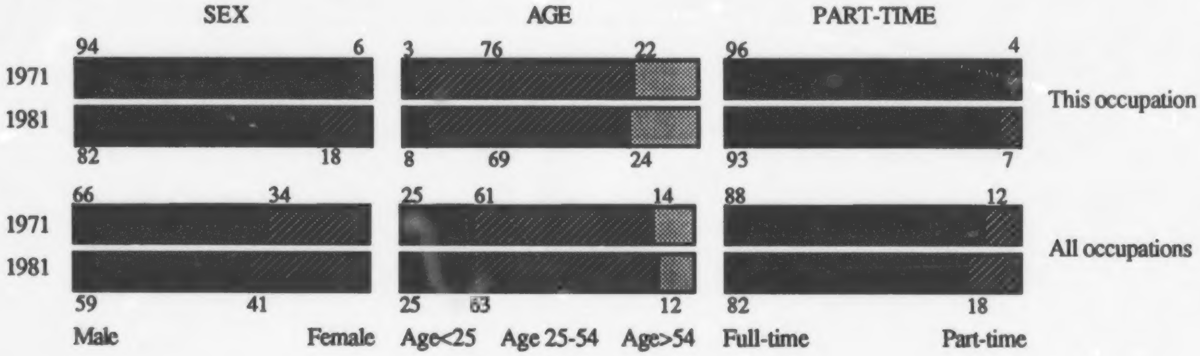
Employment Trends and Projections

	Employment			Average Annual Growth Rate (%)		
	1981	1986	1995	1971-81	1981-86	1987-95
This Occupation	N/A	2,600	3,300	2.6	5.6	2.1
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation		All Occupations
	1987-95	% of 1987 Jobs	% of 1987 Jobs
Net New Job Openings	600	18.3	11.1
Replacement Openings	1,100	33.4	49.2
Total Job Openings	1,700	51.7	60.3

CENSUS – 1971 and 1981 (%)



1981 CENSUS – Main Industries of Employment (%)

Services (96)	Trade (3)
– Oth Health Services (95)	– Retail Trade (3)
– Hospitals (1)	

Geographic Distribution of Employment – 1981 (%)

Newfoundland	2.0	Ontario	34.4
Prince Edward Island	0.3	Manitoba	4.1
Nova Scotia	2.6	Saskatchewan	3.6
New Brunswick	2.0	Alberta	8.2
Quebec	36.5	British Columbia	6.9

Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
– College (1981-86)	0	0.0
– University (1981-86)	184	100.0
Trade Vocational Schools (1983/84 only)	0	0.0

For further information, contact:

Health and Welfare, Canada
Health Information Division
Room 1364
Brooke-Claxton Building
Ottawa, Ontario K1A 0K9
(613) 957-3076

The Canadian Association of Optometrists
Suite 301
1785 Alta Vista Drive
Ottawa, Ontario K1G 3Y6
(613) 738-4400

Optometrists

3153

Job Environment

Optometrists specialize in the examination of patients' eyes to determine visual efficiency. Where appropriate, they diagnose defects and prescribe treatment (excluding drugs or surgery) to correct vision in healthy eyes. Vision analysis involves a series of tests with sophisticated instruments. Depending on the examination findings or diagnosis, optometrists may refer patients to medical practitioners such as ophthalmologists, prescribe corrective lenses such as eyeglasses and contact lenses, or recommend eye exercises. Optometrists also act as educators, counselling patients on topics such as contact lens care, visual hygiene, lighting arrangements and safety factors. Most optometrists prefer to operate a complete vision care service by supplying the materials used in their own prescriptions and fitting contact lenses. Usually, optometrists work in private practice (95% in 1981), although group practice is becoming increasingly popular. Employment opportunities also exist in optometric vision care clinics, community health centres, or in consulting work for government and industry.

Educational Background and Skills

Entry to this field is restricted to graduates of a recognized school or college of optometry. Candidates for entry to professional programs must have a high-school diploma with emphasis on the basic sciences and mathematics, as well as one to three years of university-level study, with concentration in the sciences. Doctor of optometry degrees can be earned at two universities (in Kitchener and Montreal), and require three to five years of full-time study, combining clinical experience with classroom instruction. Registration with a provincially designated professional regulatory agency is a mandatory condition of practice in every province, and often requires the passing of a licensing exam. The field of optometry is changing rapidly. Continuing professional education is therefore important to the practising optometrist.

Nature of Supply

The formal education system is the major avenue of entry into optometric practice. Due to the precise educational requirements, entrants from the military, the household sector, and other occupations, as well as immigrants add only marginally to the number of optometrists.

Most optometrists enter active practice between the ages of 25 and 35, and usually remain in the profession until their retirement, approximately 40 years later. In 1981, almost 20% of optometrists were women, a marked increase over the proportion found 10 years earlier. Employment opportunities for optometrists exist in both rural and urban areas. Urban practices offer the greatest potential for specialization.

Market Conditions and Job Prospects

Throughout the 1970s, employment growth among optometrists was below that for the labour force as a whole. Since 1981, however, job growth in this field has been relatively strong. Although rates of increase are expected to decline somewhat over the next few years, employment growth among optometrists should remain at the overall occupational average until at least 1995. During this period, about 1,700 employment positions will become available in this field. Approximately 600 of these openings will be the consequence of increasing demand for optometrist services. The remainder will occur as currently employed optometrists withdraw from the active work force.

Unemployment among optometrists is virtually nonexistent, partly because of the high number of self-employed professionals. While the number of reported job vacancies per 1,000 optometrists has declined somewhat in recent years, it is almost four times higher than in the labour force in general. This suggests a positive employment outlook in this field. A high proportion of optometrists (93% in 1981) are employed full-time, although, as in the general labour force, this proportion has been declining. The level of optometrist employment is not significantly affected by business conditions or seasonal patterns.

Technological change in the near future should have little effect on the demand for optometrists or the skills required for practice. Positive influences on employment demand are the aging Canadian population and the increasing importance of proper, early vision care.

Earnings

The average 1984 earnings of 1982 university graduates employed full-time were $40,765. In most provinces, optometrist services are covered by medical insurance programs. This factor, as well as fee schedules, hours and location of practice, years of experience, patient population and personality, combine to influence salary levels. It is, therefore, not unusual to find a significant gap in income between those setting up a practice and more experienced optometrists. Three provincial optometrists' associations reported the following 1986-1987 average earnings:

Alberta	$75,652 – $81,124
Saskatchewan	45,000 – 55,000
Ontario	50,000 – 75,000

Dispensing Opticians 3154

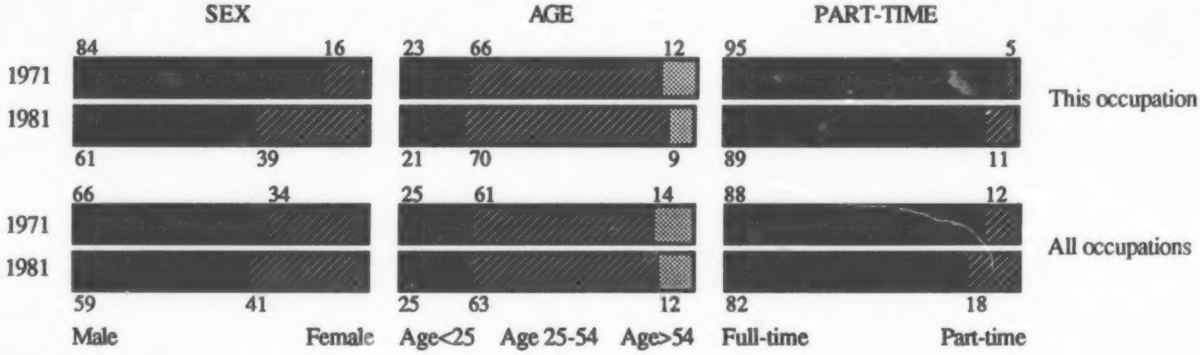
Employment Trends and Projections

	Employment			Average Annual Growth Rate (%)		
	1981	1986	1995	1971-81	1981-86	1987-95
This Occupation	3,500	3,900	4,400	9.0	2.3	1.1
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation		All Occupations
	1987-95	% of 1987 Jobs	% of 1987 Jobs
Net New Job Openings	400	8.8	11.1
Replacement Openings	1,000	26.0	49.2
Total Job Openings	1,400	34.8	60.3

CENSUS – 1971 and 1981 (%)



1981 CENSUS – Main Industries of Employment (%)

Trade (64)	Services (19)	Manufacturing (16)
- Retail Trade (63)	- Oth Health Services (19)	- Misc Manufacturing (16)
- Wholesale Trade (2)		

Geographic Distribution of Employment – 1981 (%)

Newfoundland	2.4	Ontario	36.4
Prince Edward Island	1.3	Manitoba	4.7
Nova Scotia	2.5	Saskatchewan	5.1
New Brunswick	2.8	Alberta	12.7
Quebec	15.3	British Columbia	16.3

For further information, contact:

Health and Welfare, Canada
Health Information Division
Room 1364
Brooke-Claxton Building
Ottawa, Ontario K1A 0K9
(613) 957-3076

Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
- College (1981-86)	127	100.0
- University (1981-86)	0	0.0
Trade Vocational Schools (1983/84 only)	0	0.0

Dispensing Opticians

3154

Job Environment

Dispensing opticians order, fit and adapt ophthalmic devices, such as eyeglasses, contact lenses and magnifiers, according to the instructions of an ophthalmologist or optometrist. Activities include checking for prescription completeness, assisting the customer with eyeglass frame selection, providing advice regarding the best lens type, ordering the prescription from an optical laboratory, verifying lens accuracy and modifying frames to ensure proper fit. Where contact lenses are involved, dispensing opticians also instruct the customer in the proper techniques of lens usage and care. Workers in this category are generally employees in a retail optical dispensary, although a small percentage have their own operations. In 1981, 63% of dispensing opticians worked in retail trade. In recent years, there has been a trend toward the franchising of optical services. Other areas of optician employment include the manufacturing sector (16%) and the health care industry (19%).

Educational Background and Skills

In most provinces, dispensing opticians must be registered with the provincial board of ophthalmic dispensers prior to obtaining employment in their field. The credentials required for registration include high-school graduation with a background in mathematics and physics, plus an approved post-secondary course in ophthalmic dispensing. In Ontario and Quebec, a formal two-year course is available at the community college level. In other provinces, training is limited to a course offered by the Canadian Guild of Dispensing Opticians involving correspondence and evening lectures at a community college, often taken in combination with on-the-job training. Previous experience in this field is often a prerequisite for program entrance. Upon graduation, eligibility for registration is determined by a registration examination.

Nature of Supply

The education programs mentioned above, the household sector and workers from other occupations are the main sources of entry into ophthalmic dispensing practice. Military personnel and immigrants are only minor sources.

At the time of the 1981 census, 40% of ophthalmic dispensers were women, almost twice the proportion reported in 1971. The average age (35) was virtually unchanged from that of 10 years earlier. Most dispensing opticians enter the field between the ages of 20 and 29. Withdrawals from this labour force start at around age 45, which may reflect data peculiarities or the movement of dispensing opticians into related positions, such as supervisor or representative for an ophthalmic supplier. Most employment opportunities are in large urban areas. The distribution of dispensing opticians across Canada appears very uneven, perhaps because in some regions optometrists may also act as ophthalmic dispensers. The ratio of population per dispensing optician is highest in Quebec, where it is almost twice the national average and more than four times greater than for Prince Edward Island.

Market Conditions and Job Prospects

Although the rate of employment growth is expected to decline somewhat in the years to come, it should continue to match that of the work force as a whole. Employment projections predict that 1,400 jobs will become available over the next eight years to meet the service demands of the Canadian market. One in every four of these will be new jobs, while the remainder will be openings created by opticians withdrawing from active practice.

Relative to the labour force as a whole, employment in this field is only moderately susceptible to economic conditions. Factors which could influence demand growth, however, include service coverage under private insurance plans and optometrist and ophthalmologist involvement in eyeglass and contact lens dispensing. Positive influences are the aging Canadian population, expanded testing of children, and a trend toward the purchase of more than one pair of corrective lenses. Current patterns suggest that technological change will not have a significant impact, at least in the near future, on the number of opticians required nor on the range of skills or tools required for practice.

Current employment prospects for dispensing opticians are extremely favourable. Unemployment is very low relative to that for the labour force as a whole, although it is somewhat higher today than in the early 1980s. The number of job vacancies is higher than average, although positions are quickly filled. In 1981, almost 90% of dispensing opticians were employed on a full-time basis. This proportion is slightly lower than 10 years earlier. Employment in these occupations is independent of seasonal forces.

Earnings

Dispensing opticians earn between $20,000 and $40,000; supervisory opticians earn more. The higher-paid opticians tend to work in high-income areas or malls and sell high-quality, expensive products.

The National Graduate Survey showed 1984 average earnings of $27,000 for 1982 university graduates working in this occupation.

Radiological Technologists and Technicians 3155

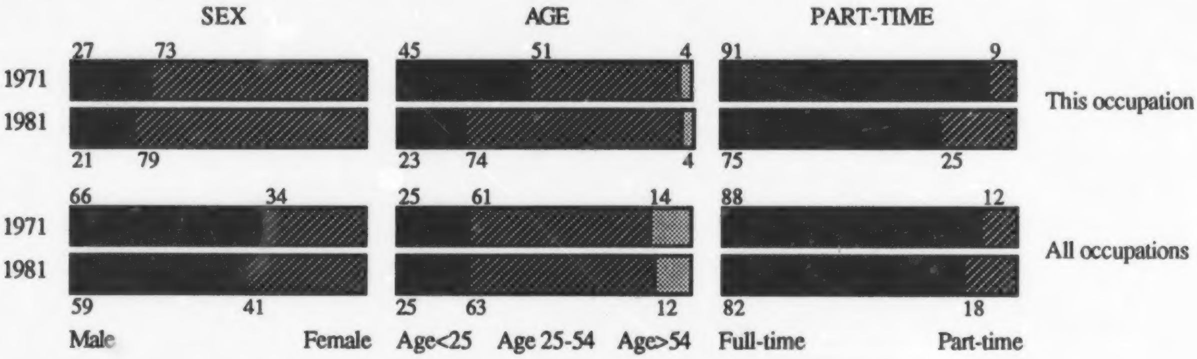
Employment Trends and Projections

	Employment			Average Annual Growth Rate (%)		
	1981	1986	1995	1971-81	1981-86	1987-95
This Occupation	8,800	10,000	11,000	3.7	2.7	1.0
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation		All Occupations
	1987-95	% of 1987 Jobs	% of 1987 Jobs
Net New Job Openings	800	8.0	11.1
Replacement Openings	2,400	23.9	49.2
Total Job Openings	3,300	31.9	60.3

CENSUS – 1971 and 1981 (%)



1981 CENSUS – Main Industries of Employment (%)

Services (98)
- Hospitals (77)
- Oth Health Services (17)
- Business Services (2)

Public Administration (1)

Geographic Distribution of Employment – 1981 (%)

Newfoundland	2.2	Ontario	33.5
Prince Edward Island	0.4	Manitoba	4.5
Nova Scotia	4.0	Saskatchewan	4.8
New Brunswick	2.3	Alberta	9.6
Quebec	29.3	British Columbia	9.9

Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
– College (1981-86)	232	100.0
– University (1981-86)	0	0.0
Trade Vocational Schools (1983/84 only)	0	0.0

For further information, contact:

Health and Welfare, Canada
Health Information Division
Room 1364
Brooke-Claxton Building
Ottawa, Ontario K1A 0K9
(613) 957-3076

Canadian Association of Medical Radiation Technologists
Suite 410, 280 Metcalfe St.
(613) 234-0012
(613) 234-0441

Radiological Technologists and Technicians

3155

Job Environment

Medical radiation technologists employ radioactive chemicals and equipment for diagnostic and therapeutic purposes. Specialties in this field include nuclear medicine, diagnostic radiology (X-ray) and radiation therapy. Technicians in nuclear medicine carry out tests by administering radioactive materials to patients. Diagnostic technologists take and process X-ray images. Radiation therapy technologists treat diseases, primarily cancer, by means of ionizing radiation. Medical radiation technologists work under the direction of a specialized physician, generally in a hospital, although limited employment opportunities exist for diagnostic technicians in clinics and private offices. The comfort of their patients and safety are the responsibility of all technologists in this field.

Educational Background and Skills

Entry into these occupations requires completion of a minimum 22-month program of study, available through some technical institutes, community colleges and hospitals. In all programs, the curriculum combines both theoretical and practical training. The minimum standard for program entry is secondary school graduation, preferably with a background in the basic sciences. Upon completion of post-secondary training, graduates may write a national certification exam, specific to their specialty. Although this is mandatory in only a few provinces, it may be required by some employers. Advanced and continuing education opportunities are available in this field.

Nature of Supply

The major avenues to these occupations are through the formal education system and, to a lesser extent, through related occupations. Other sources of supply, such as the military, immigration and the household sector, are marginal.

In 1981, almost 80% of radiological technicians were women, a moderate increase over the 1971 figure. The regional distribution of medical radiation technologists is similar to that of the population as a whole. Since most professionals are employed in hospitals, employment opportunities are best in urban areas. Most medical radiation technologists enter practice between the ages of 20 and 29.

Market Conditions and Job Prospects

Between 1971 and 1981, employment in this field grew at a rate marginally above that for all occupations. In more recent years the rate of employment growth has remained constant for medical radiation technologists, while the overall labour force rate has declined somewhat. In the period leading up to 1995, rates of employment increase are expected to be about the same as for all occupations, based on the outlook for the health services sector. During this period, approximately 3,200 job openings will be created, of which almost one-quarter will be generated by an expanding demand for the services provided by medical radiation technologists. The remainder will be vacancies left by medical radiation technologists withdrawing from the active work force.

Although current projections suggest strong employment growth in this field, actual rates of change will be affected by the dual impact of technology in this field. On the one hand, the trend in hospitals toward use of mobile technical equipment and personnel in an effort to share expensive services could limit employment demand. On the other hand, technological innovation could enhance demand by increasing the level of specialization required in this field. As in other health-related occupations, the aging population should positively influence employment for medical radiation technologists.

Employment prospects in this field are good. The rate of unemployment is low by current standards, and there are a high number of job vacancies compared to the number in the labour force in general. Employment of this work force is largely independent of business and economic conditions, although it is strongly influenced by government policy. Almost one-quarter of medical radiation technologists are employed on a part-time basis. This is a high number relative to the overall proportion of part-time workers in the labour force.

Earnings

Salary levels in this field vary considerably according to the province and the institution. Labour Canada statistics reveal that 1985 salaries for diagnostic radiation technologists averaged $27,764 to $31,355. Examples of salary ranges in that same year for provincially employed X-ray technologists include $21,792 to $33,132 in Alberta and $20,475 to $37,313 in New Brunswick. Overall, the salaries of medical radiation technologists range from $20,000 to $40,000 per year. Actual rates of pay will vary according to qualifications and years of experience. In 1984, 1982 graduates of community college programs in X-ray, radiology and nuclear medicine technology, employed full-time in this field, earned, on average, $20,310.

Medical Laboratory Technologists and Technicians 3156

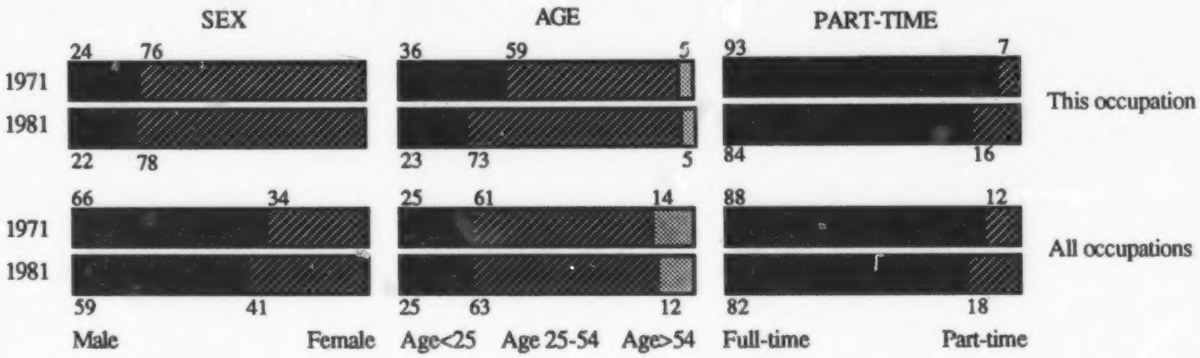
Employment Trends and Projections

	Employment			Average Annual Growth Rate (%)		
	1981	1986	1995	1971-81	1981-86	1987-95
This Occupation	31,900	36,300	40,200	6.2	2.6	1.0
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation		All Occupations
	1987-95	% of 1987 Jobs	% of 1987 Jobs
Net New Job Openings	3,100	8.4	11.1
Replacement Openings	7,300	19.7	49.2
Total Job Openings	10,400	28.1	60.3

CENSUS – 1971 and 1981 (%)



1981 CENSUS – Main Industries of Employment (%)

Services (88)
- Hospitals (61)
- Oth Health Services (18)
- Education (6)

Public Administration (5)
- Provincial Admin (3)
- Federal Admin (2)

Manufacturing (4)
- Chemicals + Chem Prod (3)

Geographic Distribution of Employment – 1981 (%)

Newfoundland	1.9	Ontario	38.3
Prince Edward Island	0.3	Manitoba	5.0
Nova Scotia	3.6	Saskatchewan	3.9
New Brunswick	2.2	Alberta	10.4
Quebec	23.1	British Columbia	11.1

Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
– College (1981-86)	836	66.6
– University (1981-86)	369	29.4
Trade Vocational Schools (1983/84 only)	51	4.1

For further information, contact:

Canadian Society of Laboratory Technologists
Box 830
Hamilton, Ontario L8N 3N8
(416) 528-8642

Health and Welfare, Canada
Health Information Division
Room 1364
Brooke-Claxton Building
Ottawa, Ontario K1A 0K9
(613) 957-3076

Canadian Society of Medical Biochemists
c/o Ottawa Civic Hospital
1053 Carling Avenue
Ottawa, Ontario K1Y 4E9
(613) 725-4492

Medical Laboratory Technologists and Technicians

3156

Job Environment

This category includes biochemical, microbiological and cytogenetic technologists, and pathological and pharmacy technicians. Medical laboratory technologists perform tests as required by the doctor, to help identify health problems and illnesses. Testing may include analysing blood, body fluids, cells, bacteria and tissues in search of abnormal chemical levels. Lab technicians prepare tissues for microscopic examination by a pathologist; perform blood counts for evidence of anemia or infection; type blood for transfusions; and prepare vaccines and perform animal inoculations.

Medical laboratory technologists work mainly in hospitals, clinics, public and private laboratories.

Educational Background and Skills

The minimum requirement for certification for employment as a medical laboratory technologist ranges from secondary school to university education, with a background in chemistry, physics or biology, and mathematics. Opportunities are strongest, however, for technologists with post-secondary training in their specialty. Available from certain colleges, institutes of technology and universities, programs of study varying from one to four years in length generally combine theoretical and laboratory studies with a final year of supervised clinical practice. Although not mandatory, technologists may be registered with the Canadian Society of Laboratory Technologists, a credential which requires the passing of a national certification exam. Technicians and technologists must constantly update their skills and knowledge to keep abreast of technological advances, which suggests that advanced training may become essential to individual career success.

Nature of Supply

Women make up approximately 78% of this work force, a situation unchanged since 1971. The average age of medical laboratory technologists in 1981 changed little from a decade earlier. As with most of the health-care occupations, technologists are found in each province and are distributed roughly as is the population. Since most technologists are employed in hospitals, employment opportunities are primarily limited to urban areas. Most begin active practice between the ages of 20 and 29, and do not begin to leave the profession in significant numbers until age 60 or 65. This implies an average career length of at least 30 years.

Market Conditions and Job Prospects

During the past 15 years, major breakthroughs in diagnostic technologies have boosted employment growth for medical laboratory technologists to twice that of the labour force as a whole. Slower growth is expected to 1995, although it should still approximate the all-occupation average. About 10,400 new medical laboratory technicians will be required over this eight-year period. One in every three of these will find employment in newly generated work positions; the remainder will replace personnel who vacate existing jobs.

Technological advances have had a significant impact on these occupations. The availability and increased use of portable laboratory analytical instruments, combined with the increase of shared laboratory services, could slow employment in this field. Demand growth in this field will depend to a great extent on government policy and the financial resources available to the health care system.

Job prospects for medical laboratory technologists are good at the present time. Unemployment is low when compared to that of the labour force in general. In 1981, hospitals and related health-care services employed 79% of medical laboratory technologists. Approximately 84% of those working in this field are full-time, just moderately higher than the average for all occupations.

Earnings

The salaries of medical laboratory technologists vary according to education, years of experience, region, size and type of facilities in which they work. However, on average, medical technologists across Canada in 1986 earned from $20,000 to $35,000 per year.[1] Salary scales for medical laboratory technicians are approximately 15% below those for technologists. The National Graduates Survey reported 1984 annual earnings averaging $22,693 for 1982 university graduates and $21,337 for community college graduates working in these occupations.

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[1] The Canadian Association of Medical Radiation Technologists, October 1986.

Denturists 3157
Dental Hygienists, Dental Assistants 3158
Dental Laboratory Technicians 3161

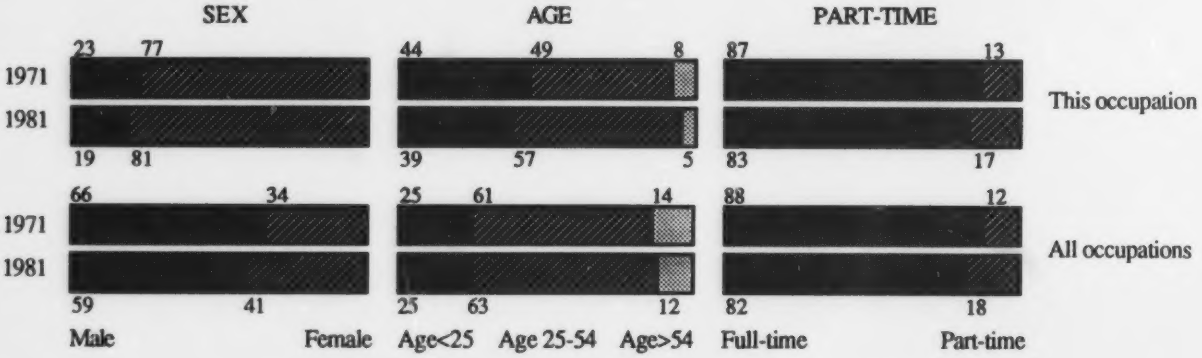
Employment Trends and Projections

	Employment 1981	Employment 1986	Employment 1995	Average Annual Growth Rate (%) 1971-81	Average Annual Growth Rate (%) 1981-86	Average Annual Growth Rate (%) 1987-95
This Occupation	27,900	34,800	39,400	8.1	4.6	1.3
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation 1987-95	This Occupation % of 1987 Jobs	All Occupations % of 1987 Jobs
Net New Job Openings	3,800	10.8	11.1
Replacement Openings	6,300	17.7	49.2
Total Job Openings	10,100	28.4	60.3

CENSUS – 1971 and 1981 (%)



1981 CENSUS – Main Industries of Employment (%)

Services (80)
- Oth Health Services (75)
- Business Services (2)
- Education (1)

Manufacturing (17)
- Misc Manufacturing (17)

Public Administration (3)
- Provincial Admin (1)

Geographic Distribution of Employment – 1981 (%)

Newfoundland	1.0	Ontario	37.1
Prince Edward Island	0.4	Manitoba	5.0
Nova Scotia	2.7	Saskatchewan	4.1
New Brunswick	1.5	Alberta	10.5
Quebec	20.8	British Columbia	16.6

For further information, contact:

Canadian Dental Hygienist's Association
1320 Carling Avenue
Ottawa, Ontario K1Z 7K9
(613) 728-8730

Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
– College (1981-86)	353	44.8
– University (1981-86)	119	15.1
Trade Vocational Schools (1983/84 only)	316	40.1

Denturists 3157
Dental Hygienists, Dental Assistants 3158
Dental Laboratory Technicians 3161

Job Environment

Dental hygienists and dental assistants generally find work with a dentist in a private office, although employment opportunities also exist in schools, hospitals and public health clinics. The dental hygienist's major responsibility is the promotion of oral health. Duties include cleaning and polishing teeth, taking X-rays and impressions, instructing patients in proper dental care techniques and performing other preventive and treatment services. Normal activities for dental assistants can include preparing the patient for treatment, sterilizing instruments, assisting the dentist at the chairside, processing X-rays, preparing solutions and fillings for treatment, and in many cases, assuming day-to-day clerical responsibilities. These functions vary from province to province.

Dental technicians and denturists generally work either as employees or owner-operators in commercial dental laboratories. On the prescription of a dentist, dental technicians alter, repair and make artificial dental devices, such as removeable dentures, bridgework, inlays, crowns and orthodontic appliances. The tasks of a denturist are much like those of a dental technician and include denture work, fitting a patient and the provision of assistance in the absence of a prescription.

Educational Background and Skills

Some dental assistants receive their vocational training on the job, although the trend today is toward formal vocational preparation. Some high schools in Ontario offer a dental assisting program, which combines on-the-job training with academic subjects during Grades 11 and 12. The majority of programs, however, are available from community colleges and vocational institutes and require one year of study beyond secondary school. Dental hygienists usually require graduation from a specialized program at a community college or university, which generally takes two years of study. Dental technicians can receive their training through a four- or five-year apprenticeship in a dental laboratory, following high-school graduation. Alternatively, they may take a two- or three-year program combining theory and practice from a community college or vocational institute. This is the recommended form of vocational preparation. Prospective denturists must follow a similar training process.

In some provinces, these occupations are subject to regulation and may require the passing of a certification exam. One or two years of internship are necessary before the candidate qualifies for licensure. Training and certification received in one province are often not transferable to others. Continuing education opportunities are generally available and may be a condition of licence renewal. Advancement into dental hygiene practice is a possibility.

Nature of Supply

In 1981, four of every five members of this occupational class were women, and over 75% of the labour force were aged 34 or under. The average age was 30, slightly below that of a decade earlier. Most members of these occupations enter practice between 20 and 27 years of age and, apart from the withdrawal of some people in their early 30s, retirements do not begin in high numbers until age 55. This suggests a typical career length of 25 years.

Market Conditions and Job Prospects

Employment growth in this field should continue to surpass the overall occupational average. Between 1987 and 1995, more than 10,000 job openings are expected in this area. Over one-half of these will be openings created by personnel withdrawing from the work force. The remainder will be new jobs.

The factors which positively influence the demand for dentists (expanding dental insurance coverage, an increasing emphasis on preventive dental maintenance and the ability of more people to keep their teeth longer) should also positively affect the demand for dental assistants and hygienists. They may have a negative impact on the demand for denturists and dental technicians, however, although an aging population suggests employment growth in these fields as well.

Employment prospects for auxiliary dental personnel are very good. Unemployment is low relative to that for the labour force in general, and the number of reported job vacancies is high. In 1981, 83% of persons in this field were employed on a full-time basis, a marginal decline from the level of 10 years earlier. This is higher than the proportion of full-time employees in the labour force as a whole. Employment in this field is not affected by changes in general business conditions or by seasonal forces.

Earnings

Salaries in this field vary considerably, depending on the specific occupation, level of experience and education, place of employment and province. The national average for dental hygienists ranges from $120 to $200 per day (approximately $27,000 to $40,000 per year). Dental assistants earn from $14,000 to $21,000 per year. Salary ranges for dental technicians are estimated at $13,000 to $32,000 per year. In 1985, Alberta's certified denturists earned an estimated annual salary of between $18,000 and $30,000 (Alberta Manpower). A survey conducted in 1985 by the Ontario Denturists' Association found that over 50% of self-employed denturists surveyed had gross earnings in excess of $60,000 a year; the majority of this group had gross revenues ranging from $60,000 to $100,000.

Product and Interior Designers 3313

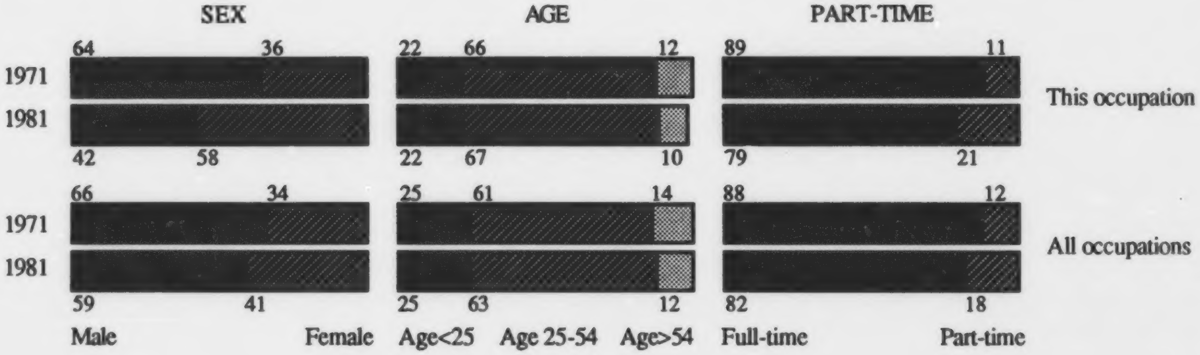
Employment Trends and Projections

	Employment 1981	Employment 1986	Employment 1995	Average Annual Growth Rate (%) 1971-81	Average Annual Growth Rate (%) 1981-86	Average Annual Growth Rate (%) 1987-95
This Occupation	20,600	22,100	25,100	4.5	1.4	1.2
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation 1987-95	This Occupation % of 1987 Jobs	All Occupations % of 1987 Jobs
Net New Job Openings	2,300	10.2	11.1
Replacement Openings	9,300	40.7	49.2
Total Job Openings	11,600	50.9	60.3

CENSUS – 1971 and 1981 (%)



1981 CENSUS – Main Industries of Employment (%)

Trade (43)
- Retail Trade (40)
- Wholesale Trade (3)

Services (27)
- Business Services (23)
- Misc Services (1)

Manufacturing (22)
- Clothing+Knitting (7)
- Misc Manufacturing (3)
- Textiles (2)

Geographic Distribution of Employment – 1981 (%)

Newfoundland	0.5	Ontario	37.4
Prince Edward Island	0.3	Manitoba	3.2
Nova Scotia	1.5	Saskatchewan	2.2
New Brunswick	1.2	Alberta	8.6
Quebec	34.4	British Columbia	10.5

For further information, contact:

Interior Designers of Canada
160 Pears Avenue
Toronto, Ontario M5R 1T2
(514) 844-1159 (Montreal)

Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
– College (1981-86)	809	75.7
– University (1981-86)	186	17.4
Trade Vocational Schools (1983/84 only)	74	6.9

Product and Interior Designers

3313

Job Environment

This occupational group includes interior designers and decorators, textile designers and industrial product designers. Their work involves designing commercial products, clothes, show windows and exhibits, or sets for stage, motion picture and television productions. Designers work in consultation with clients and other specialists in the field and spend long hours completing projects in time for urgent deadlines. More experienced designers also travel and attend design conferences. The work environment may be an overcrowded workroom or an office, home or store.

Educational Background and Skills

The amount of training necessary in these occupations depends on the specialization, but is usually between two and four years at the college level. Industrial product designers and professional interior designers must take an engineering and architectural program and a Bachelor of Interior Design respectively. Prerequisites for these programs vary according to the school and level, but usually include Grade 12 or a high-school diploma. On-the-job training may also be necessary and is provided by the employer for a period of one to five years. Good interpersonal skills, initiative, the ability to perceive three-dimensional space from two-dimensional drawings and good perception of colour are some of the characteristics suitable for a designer.

Nature of Supply

Data from the post-secondary education system indicate that graduates from community colleges and universities are the most important source of new supply to this occupation. Programs at the college level leading to this occupation include interior design and other applied arts programs. The main channels of entry from university are industrial design and other applied arts fields, such as graphic arts, drawing, fashion design and interior design. Opportunities for advancement into management, consulting or self-employment are foreseeable for designers with experience and demonstrated talent.

Women represented 58% of this occupational group in 1981, compared to 36% in 1971. This field is, therefore, an increasing source of employment for women. The age composition of the group remained stable between 1971 and 1981 and is representative of the age structure of the labour force as a whole. Most designers are employed in Ontario (37%) and Quebec (34%).

Market Conditions and Job Prospects

The employment outlook for these occupations calls for about average growth over the forecast period, based on growth prospects for the retail trade, business services, and clothing and knitting sectors. This projection differs from the 1970s and early 1980s situation, when employment grew faster than average.

Labour market conditions for this occupational group were quite good up to 1986. The 1981-1982 recession did not limit employment opportunities in these occupations as severely as in others. Evidence of this are unemployment rates, which have remained well below average. Up to 1995, over 11,000 designers will be needed to fill new job openings and to replace personnel who leave due to death and retirement or who return to the household or the educational system.

Over the projection period, changing economic and business conditions and technology should not have as significant an impact on employment in this occupational group as in other occupations. There is no distinct seasonal pattern of employment. The incidence of part-time work is higher than average due to the heavy concentration of employment in the retail trade sector.

Earnings

Designers' incomes vary considerably according to experience, talent, area of specialization and whether or not the designers are self-employed. Fashion designers with national or international reputations earn the most. They usually work free-lance and negotiate their fees with the manufacturers.

The Association of Canadian Industrial Designers noted that in 1986 the minimum starting salary for industrial designers was $18,000. The average salary was $28,000 after five years and $40,000 after 10 years. The self-employed average was $50,000. Graduates from interior design programs can expect starting salaries ranging from $13,000 to $15,000 per year. University graduates averaged $17,700 per year and community college graduates averaged $15,800 per year in 1984, as reported by the National Graduate Survey for 1982 graduates.

Advertising and Illustrating Artists 3314

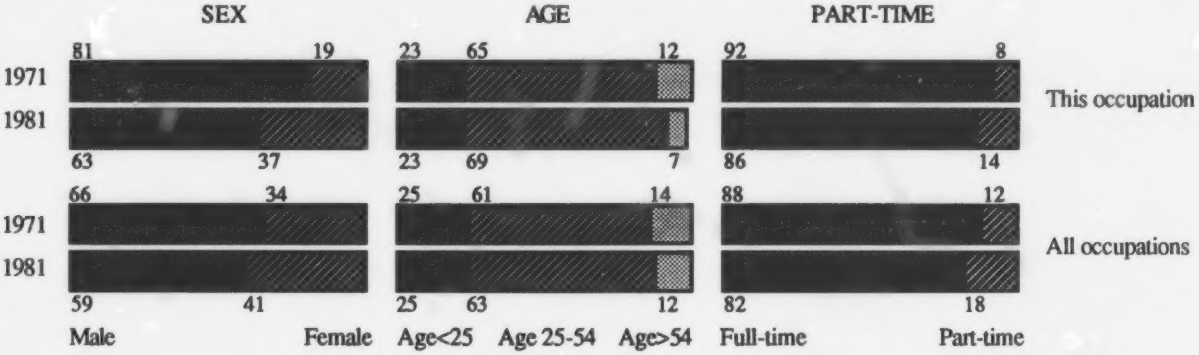
Employment Trends and Projections

	Employment			Average Annual Growth Rate (%)		
	1981	1986	1995	1971-81	1981-86	1987-95
This Occupation	17,500	19,800	22,500	8.4	2.5	1.3
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation		All Occupations
	1987-95	% of 1987 Jobs	% of 1987 Jobs
Net New Job Openings	2,100	10.5	11.1
Replacement Openings	6,000	29.6	49.2
Total Job Openings	8,200	40.1	60.3

CENSUS – 1971 and 1981 (%)



1981 CENSUS – Main Industries of Employment (%)

Services (47)	Manufacturing (33)	Trade (8)
- Business Services (36)	- Printing+Publishing (20)	- Retail Trade (5)
- Misc Services (5)	- Misc Manufacturing (8)	- Wholesale Trade (3)
- Education (3)		

Geographic Distribution of Employment – 1981 (%)

Newfoundland	0.4	Ontario	46.4
Prince Edward Island	0.3	Manitoba	3.6
Nova Scotia	2.2	Saskatchewan	2.2
New Brunswick	0.8	Alberta	9.8
Quebec	24.7	British Columbia	9.6

Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
- College (1981-86)	506	59.1
- University (1981-86)	210	24.5
Trade Vocational Schools (1983/84 only)	140	16.4

Advertising and Illustrating Artists

3314

Job Environment

Occupations in this group include advertising, commercial and graphic artists, and medical and scientific illustrators. These artists create designs, illustrations, cartoons and caricatures for the advertising, entertainment and information fields. Their work environment is usually a well-lit studio conducive to the production of clean, attractive work.

Educational Background and Skills

There is no specific preparation for this occupation; each person's background, aptitude and demonstrated ability are as important as formal education. Suitable characteristics include a broad knowledge of the various art forms, including photography, and a natural talent in art. Prospective medical illustrators should have a basic knowledge of science, since most of the work is done in consultation with medical professionals. These qualifications, combined with a college or university diploma or degree in related disciplines, provide applicants with all the necessary requirements for entering the occupation. Community college and private art colleges offer programs lasting between two and four years. Most employers ask applicants to present samples of their work.

Nature of Supply

Graduates from the post-secondary education system are the primary source of new occupational supply. The major fields of study leading to these occupations are commercial or advertising arts, promotional arts and graphic and audio-visual arts. A university undergraduate degree in fine arts is also relevant. Advancement opportunities in this category depend on the area of specialization.

The increase in job opportunities for advertising and illustrating artists during the 1970s represented an important source of employment for women, whose proportion in this group grew from 19% in 1971 to 37% in 1981. The age composition of this occupational group is characterized by a higher-than-average proportion of artists aged 25 to 54. Generally, individuals enter the occupation between the ages of 17 and 29 and begin to leave by the end of their 50s, for a career length of 35 to 40 years. Most advertising and illustrating artists work in Quebec (25%) and Ontario (46%).

Market Conditions and Job Prospects

The employment outlook for these occupations calls for about average growth over the forecast period, based on employment patterns in the business services and printing and publishing sectors. This differs from the situation in the 1970s and early 1980s, when employment grew faster than average. The majority of hirings in the forecast period will occur to replace personnel lost through death, retirement and returns to the household and educational system.

Labour market conditions for these occupations in 1986 were fair. The 1981-1982 recession limited employment opportunities, but the employment situation has improved since then. Relative to other occupations, labour market conditions have been only slightly more favourable. By the year 1995, approximately 8,100 artists/illustrators will be required to fill new jobs and to replace personnel in existing jobs.

This group is slightly vulnerable to changing business conditions, as reflected in recent employment patterns. Employment is not seasonal, although there is some slowdown during the winter months, nor is it directly affected by changes in technology. Advancements in computer graphics, however, have greatly benefited graphic and commercial artists. Part-time work in these occupations is slightly lower than the average for all occupations.

Earnings

Artists paid by provincial governments earn the salaries shown.

Province	Title	Estimated Salary Range
Alberta (1985)	Artist Illustrator	$22.056 – $28.476
Ontario (1986)	Commercial Artist	17.976 – 22.956
Ontario (1986)	Illustrating Artist	18.884 – 28.472
Nova Scotia (1986)	Illustrating Artist	23.989 – 29.301
New Brunswick (1984)	Commercial Artist	15.576 – 29.292

Photographers and Camera Operators 3315

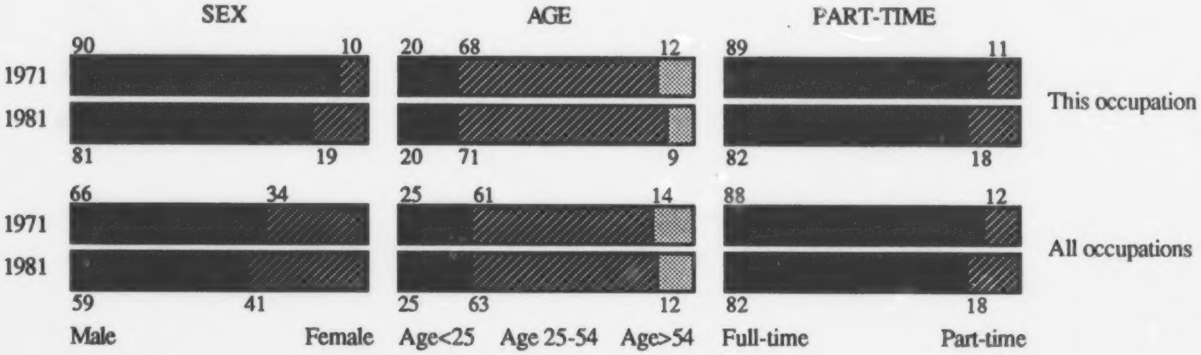
Employment Trends and Projections

	Employment			Average Annual Growth Rate (%)		
	1981	1986	1995	1971-81	1981-86	1987-95
This Occupation	8,300	10,000	11,900	4.9	3.9	1.8
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation		All Occupations
	1987-95	% of 1987 Jobs	% of 1987 Jobs
Net New Job Openings	1,600	15.1	11.1
Replacement Openings	3,800	36.4	49.2
Total Job Openings	5,300	51.5	60.3

CENSUS – 1971 and 1981 (%)



1981 CENSUS – Main Industries of Employment (%)

Services (69)
- Misc Services (55)
- Recreation (5)
- Business Services (4)

Manufacturing (11)
- Printing+Publishing (9)

Trans+Stor+Comm+Util (11)
- Radio+TV Broadcast (10)

Geographic Distribution of Employment – 1981 (%)

Newfoundland	1.1	Ontario	40.6
Prince Edward Island	0.3	Manitoba	5.5
Nova Scotia	2.5	Saskatchewan	2.5
New Brunswick	2.2	Alberta	9.3
Quebec	24.5	British Columbia	11.6

Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
– College (1981-86)	86	56.6
– University (1981-86)	66	43.4
Trade Vocational Schools (1983/84 only)	0	0.0

Photographers and Camera Operators

3315

Job Environment

People in this group include commercial, industrial and aerial photographers as well as television and news camera operators. They may photograph people, events or materials, or operate a camera to film motion-pictures, television scenes or news events. Specialization in specific areas such as historical, medical and aerial photography is becoming commonplace. The work is either on location or in studios and laboratories and can involve extensive travel. Experience in these occupations often leads to supervisory and management positions in studios or processing laboratories.

Educational Background and Skills

There are two main paths of entry into this field. After completing Grade 12 or a high-school diploma, individuals can either start working with a firm that will provide two to six years of on-the-job training, or obtain a two- or three-year college diploma in a related career program. Other desirable qualifications include previous amateur experience in photography, the ability to work well with others and some artistic talent. Persons in these occupations should also have a lively interest in people, as they are frequently meeting the public.

Nature of Supply

Most photographers and camera operators are community college graduates with diplomas in photography, radio or TV broadcasting, cinematography/film production/animation or other mass communications studies. University graduates entering the occupation generally have degrees or certificates in mass communication studies or other applied arts. Temporary foreign workers have also significantly augmented the labour supply in the past.

The representation of women in this occupational group increased significantly from 10% to 19% between 1971 and 1981. The age structure of the occupation shows a higher-than-average proportion of individuals in the 25 to 54 age category. Most people enter the occupation while in their 20s and begin to leave during their 40s, suggesting a career length of 20 to 25 years.

Market Conditions and Job Prospects

The employment outlook for these occupations calls for above-average growth over the forecast period, based on growth prospects for the miscellaneous services, printing and publishing, and video and television broadcasting sectors. This would parallel trends during the 1970s and early 1980s, when employment grew at a faster-than-average pace. Job openings will be created mainly by deaths, retirements and returns to the household and educational system. Total employment requirements are expected to be about 5,400 up to 1995.

Labour market conditions for this occupational group have been about average, as indicated by the number of job vacancies registered at Canada Employment Centres and by the average rate of unemployment since the 1981-1982 recession. In comparison with other occupations, labour market conditions for photographers and camera operators have been no better or worse than average.

This group is only mildly susceptible to changing business conditions. There is no distinct seasonal pattern of employment, and the incidence of part-time work is average. The increasing use of visual aids in business and image-recording in medicine, law and science have been boosting the demand for technically competent personnel in this area.

Earnings

Many factors determine the incomes of commercial photographers, such as reputation, experience, location and whether a photographer free-lances or is employed by an organization. Advertising budgets are larger in Toronto, the centre of industrial and commercial photography. Corporations, design firms, large magazines and newspapers pay moderately well, while local newspapers and direct retail clients pay the lowest rates. Assistants to established photographers earn about $200 to $250 a week; free-lance assistants earn between $75.00 and $100 a day. Salaries in 1986-1987 for photographers employed by the federal government ranged between $19,000 and $20,500 at the entry level.

The Canadian Association of Motion Picture and Electronic Recording Artists (CAMERA) reported 1986 minimum hourly rates of $5.78 for trainees to $50.00 for directors of photography. The National Association of Broadcast Employees and Technicians (NABET) reported 1986 minimum free-lance hourly rates of $24.00 for camera operators (features) and $40.00 for directors of photography (commercials).

The National Graduate Survey reported 1984 average annual earnings of $14,000 for university graduates and $12,700 for community college graduates who had been working in this occupation two years.

Producers and Directors, Performing and Audio-Visual Arts 3330

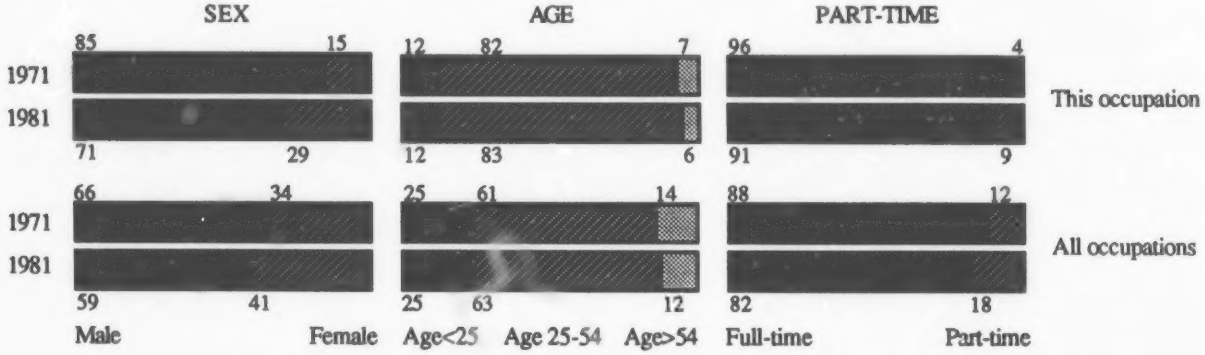
Employment Trends and Projections

	Employment			Average Annual Growth Rate (%)		
	1981	1986	1995	1971-81	1981-86	1987-95
This Occupation	9,500	10,600	12,100	9.2	2.1	1.6
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation		All Occupations
	1987-95	% of 1987 Jobs	% of 1987 Jobs
Net New Job Openings	1,400	13.3	11.1
Replacement Openings	2,100	19.5	49.2
Total Job Openings	3,500	32.8	60.3

CENSUS – 1971 and 1981 (%)



1981 CENSUS – Main Industries of Employment (%)

Trans+Stor+Comm+Util (53)	Services (42)	Public Administration (3)
- Radio+TV Broadcast (52)	- Recreation (32)	- Federal Admin (1)
	- Business Services (4)	- Provincial Admin (1)
	- Education (3)	

Geographic Distribution of Employment – 1981 (%)

Newfoundland	1.0	Ontario	38.6
Prince Edward Island	0.3	Manitoba	3.2
Nova Scotia	1.9	Saskatchewan	1.6
New Brunswick	1.7	Alberta	7.2
Quebec	36.7	British Columbia	7.6

Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
- College (1981-86)	78	45.3
- University (1981-86)	77	44.8
Trade Vocational Schools (1983/84 only)	17	9.9

For further information, contact:

Canadian Television Producer and Directors Association
3rd Floor
330 McLeod Street
Ottawa, Ontario K2P 2C5
(613) 724-5318

Alliance of Canadian Cinema Television & Radio Artists
2239 Yonge Street
Toronto, Ontario M4S 2B3

Canadian Association of Broadcasters
Box 627, Station B
Ottawa, Ontario K1P 5S2
(613) 233-4035

Producers and Directors, Performing and Audio-Visual Arts 3330

Job Environment

This occupational group includes dramatic, musical and program directors as well as theatrical, motion picture and video producers. These people produce, direct and supervise radio and television programs, motion picture productions and theatrical performances. In most instances, they work long hours under stressful conditions. However, the prestigious results are highly rewarding.

Educational Background and Skills

There are no specific educational requirements, although a high-school diploma and a two- or three-year career program at the college level in relevant disciplines or a bachelor's degree in a program lasting three or four years may prove beneficial. A background in theatre, cinematography, television or music production and leadership, organizational and management skills are as important as academic training in this field. In fact, most of the jobs in this occupational group require many years of relevant experience. Other desirable qualifications are a good knowledge of accounting, marketing, management and directing. The ability to work with others is important for casting officers, choreographers and sound and lighting personnel.

Nature of Supply

Occupations in this classification are not usually entry-level ones, owing to the required work experience, but are almost entirely restricted to persons with relevant backgrounds. Other new entrants, however, include college and university graduates with a diploma or a degree in mass communication studies and fine and applied arts. Temporary foreign workers have been a significant source of new supply to this occupation in past years.

The representation of women in this occupation almost doubled between 1971 and 1981, from 15% to 29%. Most workers (eight out of 10) are in the 25 to 54 age category and three-quarters of them work in Quebec (37%) and Ontario (39%). They generally enter this field between the ages of 25 and 35 and begin to leave while in their 50s, for an average career of 25 years.

Market Conditions and Job Prospects

The employment outlook for this occupational group calls for about average growth over the next eight years, based on employment patterns in the radio, television and broadcasting, and recreation sectors. This will be a departure from the situation in the 1970s and early 1980s, when employment grew faster than average. Future job openings will occur mainly to replace personnel lost through death, retirement and returns to the household or educational system. Total employment requirements, including new jobs, are expected to be about 3,500 up to 1995.

This occupational group has experienced fairly good labour market conditions in the past few years, in spite of the 1981-1982 recession. Job opportunities for producers and directors should continue to grow with expansion of the film and video industry. Employment in these occupations is mildly susceptible to changing business and economic climates. Technological change has not significantly affected these occupations and there tends to be very little seasonal variation.

Earnings

Pay ranges in this occupational group vary according to experience and the type of work involved. Apprentice producers/directors earn salaries from $17,000 to $27,000 per year. At the end of two years' service, they may earn up to $41,000, and after eight years their pay levels may approximate an annual salary of $46,000. Salaries for directors of feature films vary with the film's budget; for pictures of up to $500,000 that take nine weeks to complete, a director would receive about $2,400 per week. Pay scales for free-lance directors of motion pictures for television range from $4,500 for a half-hour production (up to five days' shooting time) to $27,000 for two hours (up to 30 days' shooting time). In 1984, the National Graduate Survey reported earnings of $15,000 for university graduates and $19,000 for community college graduates who graduated in 1982 and had been working in this occupation two years.

Conductors, Composers and Arrangers 3331
Musicians and Singers 3332
Occupations Related to Music and Musical Entertainment 3333

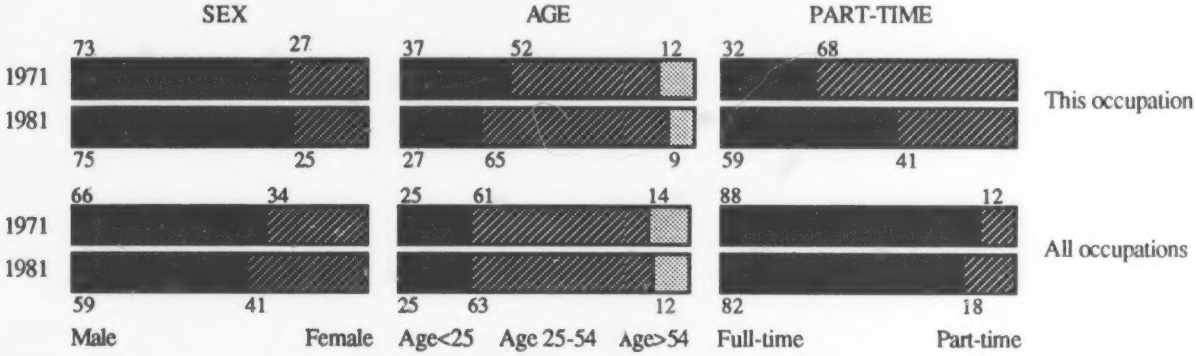
Employment Trends and Projections

	Employment			Average Annual Growth Rate (%)		
	1981	1986	1995	1971-81	1981-86	1987-95
This Occupation	14,700	16,100	19,400	4.7	1.8	2.1
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation		All Occupations
	1987-95	% of 1987 Jobs	% of 1987 Jobs
Net New Job Openings	3,000	18.2	11.1
Replacement Openings	5,400	32.7	49.2
Total Job Openings	8,400	51.0	60.3

CENSUS – 1971 and 1981 (%)



1981 CENSUS – Main Industries of Employment (%)

Services (95) - Recreation (67) - Accommodation + Food (14) - Religion (9)	Public Administration (2) - Federal Admin (2)	Trans + Stor + Comm + Util (2) - Radio + TV Broadcast (1)

Geographic Distribution of Employment – 1981 (%)

Newfoundland	0.8	Ontario	44.0
Prince Edward Island	0.4	Manitoba	3.8
Nova Scotia	3.1	Saskatchewan	1.7
New Brunswick	1.3	Alberta	9.0
Quebec	24.2	British Columbia	10.7

Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
- College (1981-86)	45	21.4
- University (1981-86)	116	55.2
Trade Vocational Schools (1983/84 only)	49	23.3

For further information, contact:

Alliance of Canadian Cinema Television & Radio Artists
2239 Yonge Street
Toronto, Ontario M4S 2B3

Association of Canadian Orchestras
Suite 311
56 The Esplanade
Toronto, Ontario M5E 1A1
(416) 366-8834

Conductors, Composers and Arrangers 3331
Musicians and Singers 3332
Occupations Related to Music and Musical Entertainment 3333

Job Environment

This occupational group includes band and orchestra conductors, music composers, instrumentalists, organists and vocalists. These people compose, arrange, direct and perform instrumental or vocal music. Their work environment is usually indoors in rehearsal studios and concert halls. Employment opportunities are with symphony orchestras, armed forces bands, rock groups, commercial studios, radio, television, opera, musical theatre and other spheres of popular entertainment.

Educational Background and Skills

The music profession is a very competitive field, which demands a high degree of competency and talent. In fact, these qualifications are as important as education, for which there is no standard requirement. Some musicians start their training in childhood. For a career as a music teacher, composer, symphony musician or conductor, a university degree is highly desirable. Community colleges and private institutions offer training programs lasting up to three years. For some positions, a minimum number of years of experience may also be required. To succeed, musicians require a high degree of discipline and emotional stability, and must be in good physical condition.

Nature of Supply

An important source of new supply to this field are persons re-entering the labour market from the household sector. Post-secondary graduates in music and English literature, immigrants and temporary foreign workers are equally important sources. Preliminary data on movement between occupations suggest that the number of people entering this occupation exceeds the number leaving it.

Female representation in these occupations decreased slightly between 1971 and 1981. Over the same period, the age composition changed as a result of a decline in the number of people under 25 and an increase in the number between the ages of 25 and 54. A comparison of the 1971 and 1981 censuses also shows that persons enter these occupations while in their 20s and begin to leave by the end of their 40s, for a career length of approximately 20 years.

Market Conditions and Job Prospects

The employment outlook for these occupations calls for above-average growth into the mid-1990s, based on the employment outlook for the amusement and recreation, accommodation and food sectors. This forecast parallels trends in the 1970s and early 1980s, when employment grew faster than average. Total job openings are expected to approximate 8,400 over the next eight years, most of which will be vacancies created by death, retirement and persons returning to the household or the educational system.

Labour market conditions for these occupations have been favourable in the past few years, compared with labour market conditions at large. The job vacancy rate has been above the average for all occupations. An anticipated reduction in the number of foreign workers in this area should enhance the employment outlook for Canadians.

These occupations are only moderately susceptible to changing economic and business conditions. Employment varies throughout the year, the high seasons being the fall and winter. In the off-season, performers find employment at summer festivals and resorts. Part-time work is very common. Technological innovations, such as synthesized music and discotheques have moderately affected this occupational group, although employment growth is still expected to be quite strong.

Earnings

Pay scales in this classification vary according to the type of work involved and the talent of the performer. In 1986, the American Federation of Musicians set the basic fees for musicians performing in commercials at $96.00 a session for up to three commercials. The basic rate for musicians working in television and motion picture films was $377 for the leader and $189 for each sideman. The basic union recording fee was $162 per three-hour session for recordings distributed only in Canada, and $196 for internationally distributed recordings. Members of symphony orchestras earned $208 per three-hour recording session, and $277 for a four-hour session. No fixed pay scale exists for singers. A concert singer's income depends on the singer's level of achievement and the availability of singing engagements. A principal singer on a 60-minute CBC TV variety special in 1986-1987 earned a minimum fee of $623, while singers in groups of three or four each earned a minimum of $242. Performers with unique talents or who have achieved star status can, of course, command much higher fees for their performances. The National Graduate Survey reported 1984 average annual pay ranges of $14,000 to $25,000 for university graduates and $11,000 to $18,000 for community college graduates who had been working in this field two years.

Choreographers and Dancers 3334

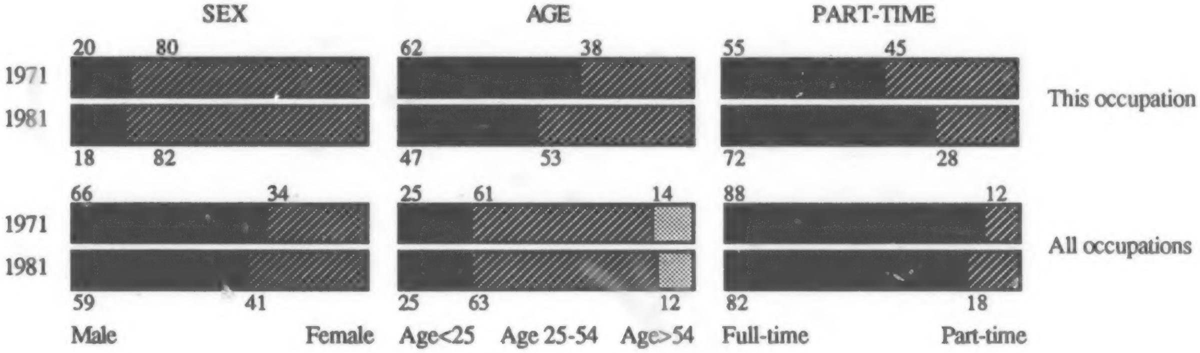
Employment Trends and Projections

	Employment			Average Annual Growth Rate (%)		
	1981	1986	1995	1971-81	1981-86	1987-95
This Occupation	1,000	1,100	1,300	10.6	1.8	2.3
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation		All Occupations
	1987-95	% of 1987 Jobs	% of 1987 Jobs
Net New Job Openings	200	20.2	11.1
Replacement Openings	400	35.3	49.2
Total Job Openings	600	55.4	60.3

CENSUS – 1971 and 1981 (%)



1981 CENSUS – Main Industries of Employment (%)

Services (96) – Recreation (70) – Accommodation+Food (19) – Education (6)	Manufacturing (2)	Trans+Stor+Comm+Util (2) – Radio+TV Broadcast (2)

Geographic Distribution of Employment – 1981 (%)

Newfoundland		Ontario	53.8
Prince Edward Island		Manitoba	7.0
Nova Scotia	0.6	Saskatchewan	1.2
New Brunswick	0.6	Alberta	2.3
Quebec	24.0	British Columbia	8.2

Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
– College (1981-86)	10	26.3
– University (1981-86)	28	73.7
Trade Vocational Schools (1983/84 only)	0	0.0

Choreographers and Dancers 3334

Job Environment

Persons in this group include choreographers, chorus dancers, classical ballet dancers and tap dancers. Their work involves composing and performing dances and instructing dancers. Some individuals pursue a career in choreography. They sometimes have the opportunity to develop choreographic skills at workshops sponsored by major dance companies. The work environment is usually indoors either on the stage, on television and on motion picture sets, or in nightclubs entertaining audiences.

Educational Background and Skills

Various paths of preparation and training lead to this occupation. There is no standard minimum requirement. Some people are initiated to the dance arts in childhood and pursue formal training at the post-secondary level. More gifted individuals may be able to start their training at a community college and continue in dance and perhaps other performing arts at university. College programs last two to three years, while university programs can take up to four years. A dancer requires good physical conditioning and an ability to respond sensitively to music.

Nature of Supply

Community college fine arts graduates and university graduates who have qualifications in performing arts are important sources of new supply to this occupation. In the past, temporary foreign workers have represented a substantial source of supply, and this trend will likely continue.

Women represented 82% of all dancers in 1981. The age structure in this classification is indicative of a career length of approximately 10 years, rather short compared with other occupations. The average age (26) is 10 years lower than the labour force average, and almost half of all dancers are under 25. The majority work in the provinces of Ontario (54%), Quebec (24%), British Columbia (8%) and Manitoba (7%).

Market Conditions and Job Prospects

The employment outlook for dancers and choreographers calls for above-average growth over the next eight years, based on employment patterns in the recreation and accommodation sectors. This parallels trends during the 1970s and early 1980s, when employment grew at a faster-than-average pace. Total job openings are expected to approximate 600 through to 1995.

Labour market conditions have been average, compared with other occupations. The number of temporary foreign workers has been decreasing in the past few years, thus creating more job opportunities for Canadians. While the 1981-1982 recession affected this occupational group slightly, labour market conditions have improved since.

These occupations are not particularly vulnerable to changes in the economic or business climate. Employment is seasonal, however, job opportunities being more plentiful in the fall and winter. Because of fierce competition and the nature of this occupation, the incidence of part-time work is very high.

Earnings

As outlined in the Canadian Theatre Agreement between the Canadian Actors' Equity Association and the Professional Association of Canadian Theatres (PACT), the 1986-1987 minimum wages for choreographers ranged from $1,001 to $3,371 (including rehearsals).

The following table shows the minimum ACTRA rates (The Alliance of Canadian Cinema, Television and Radio Artists) paid to dancers at the CBC and CTV Television Networks.

	Daily Rate (8 hrs/day)	Hourly Rate	Overtime Rate	Weekly Rate
CBC				
Principal Dancer (solo or duo)	$303.25	$37.95	$57.10	$1,212.05
Group Dancers (three or four)	227.20	28.80	43.15	907.85
CTV				
Principal Dancer (solo or duo)	278.00	34.75	52.15	1,112.00
Group Dancers	–	21.20	32.30	–

Actors/Actresses

3335

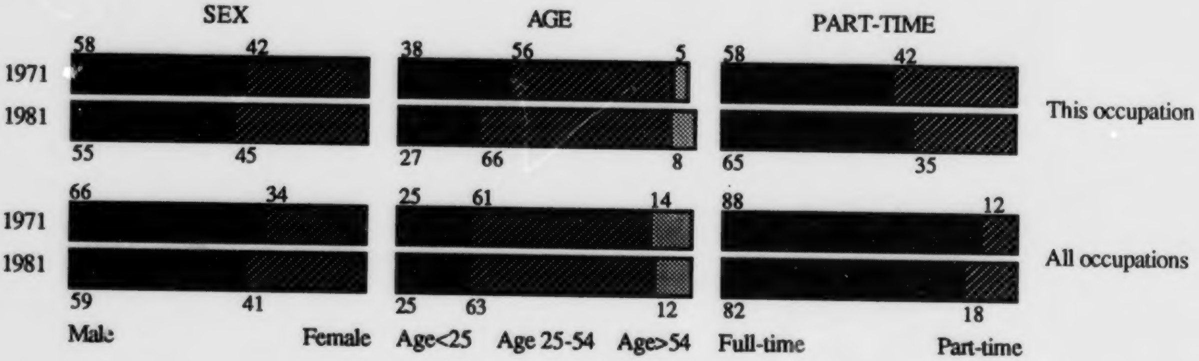
Employment Trends and Projections

	Employment 1981	Employment 1986	Employment 1995	Average Annual Growth Rate (%) 1971-81	Average Annual Growth Rate (%) 1981-86	Average Annual Growth Rate (%) 1987-95
This Occupation	2,500	2,800	3,300	11.3	1.9	2.0
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation 1987-95	This Occupation % of 1987 Jobs	All Occupations % of 1987 Jobs
Net New Job Openings	500	17.3	11.1
Replacement Openings	700	24.2	49.2
Total Job Openings	1,200	41.4	60.3

CENSUS – 1971 and 1981 (%)



1981 CENSUS – Main Industries of Employment (%)

Services (85)
- Recreation (74)
- Misc Services (3)
- Accommodation + Food (3)

Trans + Stor + Comm + Util (11)
- Radio + TV Broadcast (11)

Public Administration (2)
- Federal Admin (1)

Geographic Distribution of Employment – 1981 (%)

Newfoundland		Ontario	41.7
Prince Edward Island		Manitoba	1.3
Nova Scotia	1.1	Saskatchewan	0.7
New Brunswick	0.7	Alberta	3.8
Quebec	40.1	British Columbia	10.9

Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
– College (1981-86)	13	13.7
– University (1981-86)	58	61.1
Trade Vocational Schools (1983/84 only)	24	25.3

Actors/Actresses

3335

Job Environment

Comedians, impersonators, radio and theatrical performers are concerned with entertaining, educating and humouring audiences. They work in several media: the theatre, radio, movies and television. Long hours of rehearsal and constant repetition before a performance are part of their job. Experience in these occupations often leads to a position as director, designer or producer.

Educational Background and Skills

Although there is no specific requirement for entry into this occupation, the majority of actors have received some professional training through university, community college, a private training school such as the National Theatre School in Montreal, or apprenticeship with a professional theatre company. Individuals must be talented, highly motivated, persevering and not afraid of constantly knocking on doors and attending auditions. They should be good observers of people and life. Other suitable characteristics are an above-average imaginative ability and self-discipline.

Nature of Supply

The labour supply for this occupation originates among persons re-entering the labour force, persons from other occupations and graduates from the post-secondary education system. The majority of university graduates found in this occupation two years after graduation have qualifications in the performing arts. Temporary foreign workers are also a significant source of supply. Although no precise estimates of inter-occupational mobility are yet available, preliminary data suggest that the flow of people into this occupation from related ones will exceed the movement out of this field.

The number of women in this occupation increased slightly from 42% in 1971 to 46% in 1981. The average age (33) was lower in 1981 than the average for the whole labour force (36). The majority of professional actors are in Quebec (40%) and Ontario (42%). Career profiles indicate that while some actors limit their entire careers to acting, others may change occupations.

Market Conditions and Job Prospects

The employment outlook for this occupation calls for above-average growth over the next eight years, based on growth prospects for the recreation, and radio and television broadcasting sectors. This should parallel the circumstances of the 1970s and early 1980s, when employment grew faster than average. Through 1995, approximately 1,200 actors will be needed. Many of the new jobs will be the result of vacancies left by death, retirement and persons returning to the household and the educational system.

Labour market conditions for this occupational group have not been very favourable in the past few years. Although the unemployment rates appear to be lower than average, many actors work in other occupations to earn a living while they search for acting work.

Changing economic and business conditions have a mild impact on the employment situation in this occupational group. There tends to be little seasonal variation, and changes in technology do not significantly affect these occupations. Part-time work is common for actors, owing to the limited number of full-time jobs and the competitiveness in this field.

Earnings

Rates of pay vary considerably according to the type of work and whether the actors are on- or off-camera and principal or group performers. The 1986-1987 minimum fee per session for principal actors on-camera at the CBC was $389. An off-camera (voice-over) performer earned $282. In 1985, a principal actor in a film (10 or more lines of dialogue) was paid a minimum of $311 a day, while an actor with under 10 lines of dialogue earned a minimum of $209 a day. The 1986-1987 minimum weekly in-town fees for stage actors ranged from $284 to $454; stage actors on tour received minimum weekly fees ranging from $669 to $839. ACTRA is the union representing actors who appear in films, and The Canadian Actor's Equity Association represents stage actors. The National Graduate Survey reported 1984 average annual earnings of $11,100 for 1982 university graduates who had been working in this occupation two years.

Radio and Television Announcers

3337

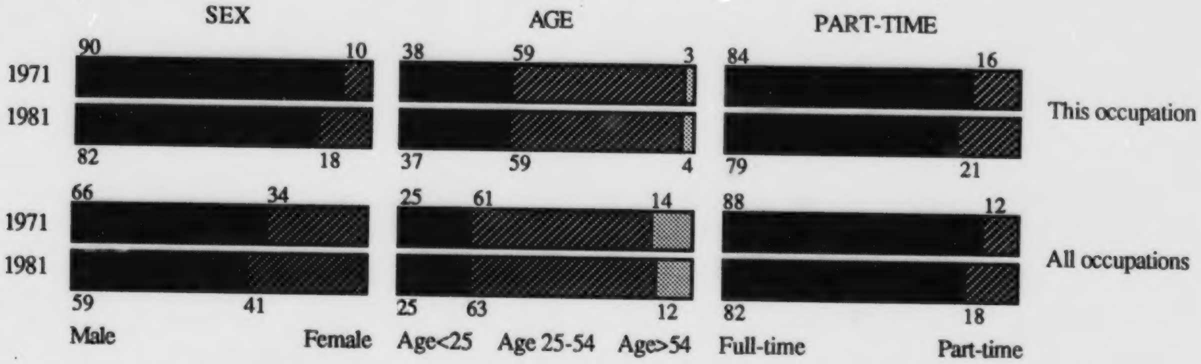
Employment Trends and Projections

	Employment 1981	Employment 1986	Employment 1995	Average Annual Growth Rate (%) 1971-81	Average Annual Growth Rate (%) 1981-86	Average Annual Growth Rate (%) 1987-95
This Occupation	5,700	6,500	7,300	8.4	2.5	1.3
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation 1987-95	This Occupation % of 1987 Jobs	All Occupations % of 1987 Jobs
Net New Job Openings	700	10.7	11.1
Replacement Openings	1,200	18.0	49.2
Total Job Openings	1,900	28.8	60.3

CENSUS – 1971 and 1981 (%)



1981 CENSUS – Main Industries of Employment (%)

Trans + Stor + Comm + Util (98)
- Radio + TV Broadcast (98)

Services (2)

Geographic Distribution of Employment – 1981 (%)

Newfoundland	2.8	Ontario	33.5
Prince Edward Island	0.6	Manitoba	4.4
Nova Scotia	3.8	Saskatchewan	5.4
New Brunswick	4.2	Alberta	9.5
Quebec	21.8	British Columbia	13.0

For further information, contact:

Alliance of Canadian Cinema Television & Radio Artists
2239 Yonge Street
Toronto, Ontario M4S 2B3

Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
– College (1981-86)	60	81.4
– University (1981-86)	3	4.1
Trade Vocational Schools (1983/84 only)	11	14.9

Radio and Television Announcers

3337

Job Environment

This occupational group includes broadcasters, disc jockeys, sportscasters and newscasters, who prepare, broadcast and comment on news, sports, events and information over radio and television. They also select and announce musical recordings and give commentaries over public address systems. The work environment is usually a radio or television studio or a sports or entertainment event.

Educational Background and Skills

The basic requirement for entry into this occupation is graduation from a college program lasting two to three years or a bachelor's degree in a relevant field of study. The employer may provide three to 24 months of on-the-job training. Other important qualifications for entering this highly competitive area are a good command of language, a pleasant-sounding, clear voice and, for sports announcers, a thorough knowledge of sports.

Nature of Supply

Persons re-entering the labour force, temporary foreign workers and graduates from the post-secondary education system are the major sources of new supply to this occupation. The main channels of entry are through radio/TV broadcasting and other mass communications college programs.

More women entered this occupation than men during the 1970s; their rate of representation increased from 10% in 1971 to 18% in 1981. The fact that more than one-third of all announcers are under 25, while fewer than average are in the 55-plus category, suggests that for many this occupation is an entry-level position in their careers. The average career spans approximately 20 years, individuals entering this occupation while in their early 20s and leaving it during their 40s.

Market Conditions and Job Prospects

The employment outlook for radio and television announcers calls for average growth into the mid-1990s, based on employment patterns in the radio and television broadcasting sector. This is a departure from the trend of faster-than-average employment growth during the 1970s and early 1980s, and may represent, in part, the maturing of the broadcasting industry, as audience markets approach satiation. Attrition, that is, the departure of personnel, will create 1,900 job openings during the next eight years.

Labour market conditions in the past few years have not been favourable. The unemployment insurance claimant rate has been well above the average for all occupations and there is no indication that this situation will improve in the near future. However, high turnover in this field could produce more employment opportunities than described above.

Since some work is available on contract and not through staff employment, the incidence of part-time positions is slightly higher than average. Changes in business conditions have only a minor effect on this occupational group. The impact of advancing technology in programming equipment will be moderate.

Earnings

According to Labour Canada, the average 1985 weekly income for Canadian TV announcers at stations with fewer than 100 employees was $520. The average salary jumped to $670 a week at stations with 100 to 499 employees and to $802 for announcers employed at stations with more than 500 employees. Sports announcers earned between $388 and $957 a week and averaged weekly earnings of $635 at TV stations with 100 to 499 employees. Radio announcers earned between $254 and $813, depending on the size of the station. The average salary was $603 per week. Sports announcers in radio earned an average weekly salary of $485.

The National Graduate Survey reported 1984 average annual earnings of $14,244 for 1982 community college graduates who had been working in these occupations two years. The equivalent average earnings for university graduates were $15,000.

Writers and Editors 3351

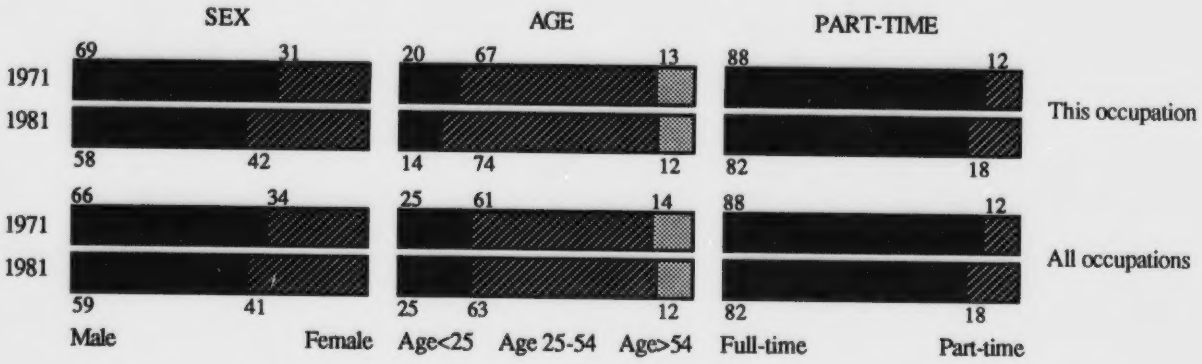
Employment Trends and Projections

	Employment 1981	Employment 1986	Employment 1995	Average Annual Growth Rate (%) 1971-81	Average Annual Growth Rate (%) 1981-86	Average Annual Growth Rate (%) 1987-95
This Occupation	27,600	32,800	36,600	6.7	3.5	1.1
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation 1987-95	This Occupation % of 1987 Jobs	All Occupations % of 1987 Jobs
Net New Job Openings	3,200	9.6	11.1
Replacement Openings	7,900	23.7	49.2
Total Job Openings	11,100	33.2	60.3

CENSUS – 1971 and 1981 (%)



1981 CENSUS – Main Industries of Employment (%)

Manufacturing (39)
- Printing+Publishing (35)

Services (33)
- Misc Services (20)
- Business Services (7)
- Education (3)

Trans+Stor+Comm+Util (17)
- Radio+TV Broadcast (15)

Geographic Distribution of Employment – 1981 (%)

Newfoundland	0.7	Ontario	46.3
Prince Edward Island	0.5	Manitoba	3.3
Nova Scotia	2.6	Saskatchewan	2.7
New Brunswick	1.5	Alberta	7.7
Quebec	24.5	British Columbia	9.9

Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
- College (1981-86)	298	32.1
- University (1981-86)	618	66.6
Trade Vocational Schools (1983/84 only)	12	1.3

Writers and Editors

3351

Job Environment

In this occupational group are advertising editors, copy writers, columnists, film editors, news reporters and press writers, who work as either free lances or permanent staff. Their jobs involve writing, researching and preparing material for publications such as newspapers, books, magazines, technical manuals and trade journals. Although creative writing is the most prominent, well-known kind, the majority of writers approach their work less as a creative exercise and more as a highly skilled craft. Newswriters and technical writers, for example, are more concerned with the accurate, concise conveyance of information than with creativity.

Occupations in this field often lead to middle and senior management positions. Advancement and other job opportunities also exist in writing-related occupations, such as public relations and teaching. The work environment varies according to the type of job but generally writers work in an office setting surrounded by colleagues in similar occupations.

Educational Background and Skills

No prerequisites apply in this classification. Some people start right after high school and learn on the job over the years, while others complete a degree in journalism. College programs in areas such as broadcast journalism and communication arts are the major avenues to the occupation. University graduates who were in this field two years after graduation were found to have qualifications in journalism, English literature and mass communications. Generally, employers prefer someone with a university degree covering several disciplines. Other valuable assets include an ability to get along well with people, good research and organizational skills, as well as prior journalism experience while in school.

Nature of Supply

The major sources of new supply to this field are graduates from the post-secondary education system and persons in the household sector re-entering the labour force.

The rate of representation of women (42%) is similar to the average for the whole labour force. The 25 to 54 age category is predominant in this classification, and a lower-than-average proportion of writers and editors are under 25. Generally, entry into the field occurs when individuals are between 25 and 34 years old, and exits begin when they are in their 60s, which suggests a career of approximately 30 years.

Market Conditions and Job Prospects

Based on employment patterns in the printing and publishing, miscellaneous services and radio and television broadcasting sectors, the employment outlook for this occupational group calls for about average growth over the forecast period. This is a departure from trends during the 1970s and early 1980s, when the employment rate was greater than average. Approximately 11,000 writers and editors will be needed over the next eight years to fill new jobs and to replace personnel in existing jobs who will be leaving due to death, retirement or to return to the household or the educational system. Because the 1981-1982 recession had minimal impact on this occupational group, labour market conditions for writers and editors rank very favourably. In 1986, the unemployment rate was low in this category.

This occupational group is not as vulnerable to changing business climates as other groups. Employment is year-round, with no distinct seasonal pattern. The incidence of part-time work is about the same as the average for all occupations. Although new technology, such as word processors and EDP equipment, has enabled writers and editors to perform tasks faster and more efficiently, it has not affected their employment situation.

Earnings

Writers' earnings depend on whether the writers are free lances or salaried staff, on the type of writing they do, and for whom they work. The 1986 minimum rates for free-lance writers of theatrical films, television programs and other productions ranged from $2,227 for a film or program that was 15 minutes or less to $13,365 for a 60- to 90-minute show.[1] The Newspaper Guild reported that 1986 minimum weekly starting salaries for newspaper reporters with Canadian dailies ranged from a high of $543 to a low of $298. Wire service reporters and editors earned minimum weekly salaries of between $734 and $758 in 1986.

The National Graduate Survey reported 1984 annual earnings of $18,800 for university graduates and $17,800 for community college graduates who had been working in these occupations for two years.

[1] As outlined in the independent producer agreement between ACTRA and the National Film Board of Canada, the Association of Canadian Film and Television Producers (ACFTP) and the Canadian Film and Television Association (CFTA).

Translators and Interpreters

3355

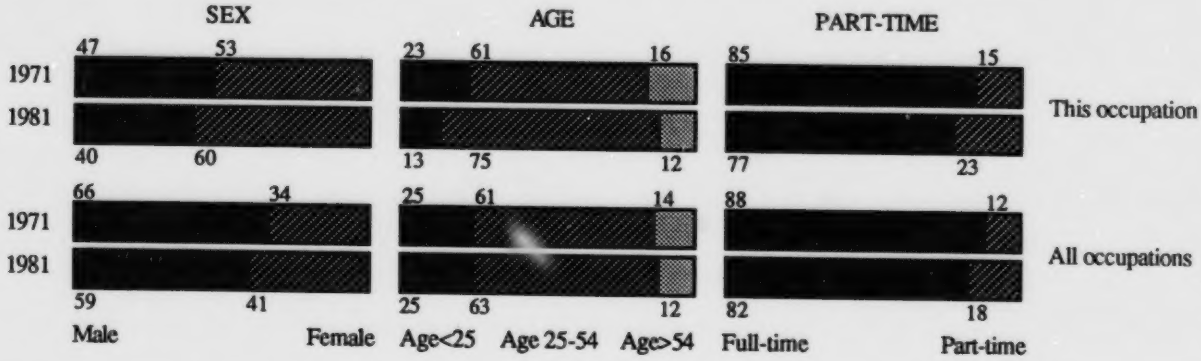
Employment Trends and Projections

	Employment			Average Annual Growth Rate (%)		
	1981	1986	1995	1971-81	1981-86	1987-95
This Occupation	5,700	6,300	7,100	12.2	1.8	1.3
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation		All Occupations
	1987-95	% of 1987 Jobs	% of 1987 Jobs
Net New Job Openings	700	11.1	11.1
Replacement Openings	1,700	26.3	49.2
Total Job Openings	2,400	37.4	60.3

CENSUS – 1971 and 1981 (%)



1981 CENSUS – Main Industries of Employment (%)

Public Administration (39)
- Federal Admin (29)
- Provincial Admin (7)
- Municipal+Oth Gov't (2)

Services (35)
- Misc Services (20)
- Education (6)
- Business Services (5)

Manufacturing (8)
- Printing+Publishing (2)
- Chemicals+Chem Prod (1)

Geographic Distribution of Employment – 1981 (%)

Newfoundland	0.6	Ontario	37.4
Prince Edward Island	0.2	Manitoba	1.4
Nova Scotia	1.1	Saskatchewan	1.0
New Brunswick	2.1	Alberta	2.2
Quebec	49.7	British Columbia	3.2

Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
– College (1981-86)	12	3.1
– University (1981-86)	374	96.9
Trade Vocational Schools (1983/84 only)	0	0.0

For further information, contact:

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1010 St. Catherine Street W.
Montreal, Quebec H3B 1G7
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969 Bronson Avenue
Ottawa, Ontario K1S 4G8
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Translators and Interpreters

3355

Job Environment

Interpreters, linguists and translators of scientific documents make oral or written translations into one or more languages. They work in the literary, scientific, technical, legal and advertising fields. The translator's work environment is usually quiet and equipped with dictionaries and other reference materials. Interpreters work in soundproof booths listening through earphones to the speaker whose speech they are interpreting. They provide the translation either simultaneously or consecutively.

Educational Background and Skills

The training necessary to become a translator or interpreter has varied over the years. In the past, a diploma or degree in French, English or journalism was required. Nowadays, more and more employers require a university degree in translation, which takes three or four years. In some cases, specialized knowledge in a field such as medicine or data processing may be required. Firms will provide on-the-job training to new recruits, under the supervision of a senior translator or interpreter. Essential qualities for these occupations are above-average writing skills and the ability to work within tight deadlines.

Nature of Supply

The most important source of labour supply to this occupation are graduates of translation/interpretation and linguistics programs. Persons re-entering the labour force with the necessary qualifications are a second source of potential labour supply. In recent years, temporary foreign workers have also entered these occupations. The possibility for advancement exists in large translation bureaus. International organizations as well as free-lance agencies offer job opportunities.

In the 1970s, the occupations in this field were a growing source of employment for women, whose representation increased from 53% in 1971 to 60% in 1981. The field is also characterized by the higher-than-average proportion of translators and interpreters between 25 and 54. Generally, they enter their occupation between the ages of 25 and 29 and begin to leave while in their 60s, implying a career length of approximately 30 to 35 years. The majority of translators and interpreters are in the provinces of Quebec and Ontario.

Market Conditions and Job Prospects

Based on growth prospects for the public administration and services sector, the employment outlook for these occupations calls for about average employment growth over the forecast period. This differs from the situation in the 1970s and early 1980s, when employment grew at a faster-than-average pace as a result of Canada's policy to actively promote bilingualism.

Labour market conditions in the past few years have been slightly more favourable than the average for all occupations. The increasing number of foreign language scientific and technical manuals will spur demand for translators trained in these areas. Approximately 2,500 translators and interpreters will be needed to fill new jobs and replace personnel in existing jobs in the next eight years.

Employment in this occupational group is not particularly vulnerable to changes in business conditions. Job opportunities tend to be stable throughout the year. Part-time employment is relatively common for translators and interpreters, more so than in other occupations. The growing use of computers to translate material, particularly texts of a technical nature, will facilitate the tasks for persons working in this field.

Earnings

In a 1986 salary survey, the Federal Pay Research Bureau reported an annual salary range for translators at the entry level of $21,900 to $35,000. Translators and interpreters who supervised a large staff earned $40,300 to $59,400 a year.

According to the National Graduate Survey, the average annual earnings of university graduates who had worked in this occupation for two years after graduating were $24,300 in 1984.

Coaches, Trainers and Instructors, Sport and Recreation 3370

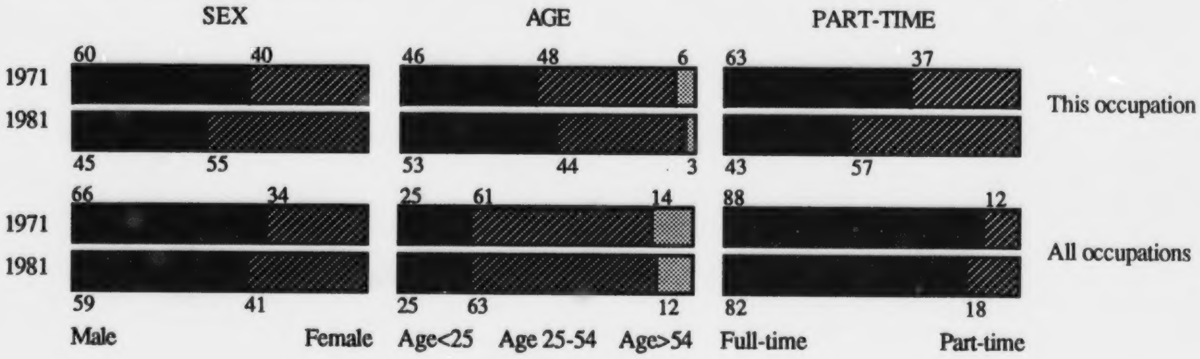
Employment Trends and Projections

	Employment 1981	Employment 1986	Employment 1995	Average Annual Growth Rate (%) 1971-81	Average Annual Growth Rate (%) 1981-86	Average Annual Growth Rate (%) 1987-95
This Occupation	22,500	24,900	28,900	7.0	2.1	1.7
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation 1987-95	This Occupation % of 1987 Jobs	All Occupations % of 1987 Jobs
Net New Job Openings	3,600	14.4	11.1
Replacement Openings	5,700	22.5	49.2
Total Job Openings	9,300	36.9	60.3

CENSUS – 1971 and 1981 (%)



1981 CENSUS – Main Industries of Employment (%)

Services (78)
- Recreation (50)
- Education (13)
- Misc Services (8)

Public Administration (20)
- Municipal+Oth Gov't (17)
- Federal Admin (2)
- Provincial Admin (2)

Trade (1)
- Retail Trade (1)

Geographic Distribution of Employment – 1981 (%)

Newfoundland	1.0	Ontario	38.5
Prince Edward Island	0.2	Manitoba	3.6
Nova Scotia	3.4	Saskatchewan	3.4
New Brunswick	1.5	Alberta	9.1
Quebec	27.9	British Columbia	11.3

Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
- College (1981-86)	227	38.0
- University (1981-86)	338	56.5
Trade Vocational Schools (1983/84 only)	33	5.5

Coaches, Trainers and Instructors, Sport and Recreation 3370

Job Environment

This occupational group includes athletic coaches and trainers; skating, skiing, swimming instructors; and physical training directors. Their job is to coach, train, and direct athletes for team sports, individual competition and recreational sport. Other activities include administering and directing athletic programs, negotiating contracts with players and giving instruction in the theoretical and practical aspects of sports and recreation. Working conditions vary according to the purpose of the organization, the sports facility, the equipment and the people involved.

Educational Background and Skills

Although there are no specific qualifications for entry into this diverse occupational grouping, most individuals are in good physical condition and have completed secondary school, obtained a post-secondary education and acquired several years of relevant experience.

Nature of Supply

The majority of individuals entering this occupation have an undergraduate degree, diploma or certificate (59%) in physical education or business, or a community college diploma or certificate (32%) in recreation and sport or business and commerce. Based on the situation in 1985, it is estimated that over the projection period 5,400 students will enter this occupation from the formal education system. Individuals re-entering the labour force after some period of separation are also a major source of supply. The number of immigrants entering this occupation is small.

Census information notwithstanding, the Coaching Association of Canada thinks that there remain considerably more men than women in this occupation, although the situation is changing. Most coaches and trainers work in Quebec and Ontario. The average age declined from 30 in 1971 to 27 in 1981, because of a large increase in the number under 25. Generally, individuals enter this occupation between the ages of 20 and 24 and begin to leave between 45 and 49, for an average career of 25 years.

Market Conditions and Job Prospects

The employment outlook for this occupational group calls for above-average growth over the forecast period, based on growth prospects for the educational, recreational, municipal and other government sectors. This would parallel the situation in the 1970s and early 1980s, when employment grew faster than average. The outlook reflects expectations of higher income levels and increased leisure time activities among the general population.

Over the projection period, 5,700 workers are expected to replace those who will leave owing to retirement, school, death and emigration. About 2,600 additional workers will be required for new jobs.

Employment in this occupational group is only mildly susceptible to changing business and economic conditions. Coaches and instructors often work in the evening and on weekends and hold other jobs during the day, which partly explains the high incidence of part-time work. Employment may be seasonal in certain sports.

The labour market situation for coaches, trainers and instructors has been better than for most occupations, as reflected by the unemployment rate, which is lower than average. At Canada Employment Centres, the rate of hard-to-fill vacancies in this field is greater than average.

Earnings

The British Columbia Recreation Association revealed the following 1985 salary ranges for recreation leaders and coaches.

Instructor, Coach, Research Director	$20,000 – $60,000
Director of Planning, Coordinator	$31,000 – $45,000
Consultant, Fitness and Amateur Sports	$30,000 – $42,000
Recreation Leader	$12,000 – $18,000
Community, School Co-ordinator	$28,000

The Ontario Therapeutic Recreation Council reported that 1986 annual salaries for entry-level recreation therapists ranged from $18,000 to $25,000; senior therapists and supervisors earned from $25,000 to $33,000. Salaries for physical fitness instructors employed by the federal government in 1986-1987 ranged from $20,662 to $31,617.

Secretaries and Stenographers

4111

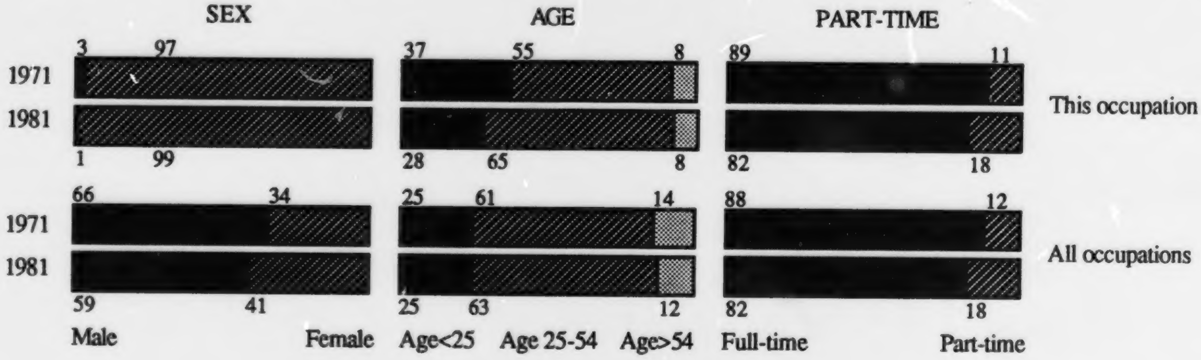
Employment Trends and Projections

	Employment			Average Annual Growth Rate (%)		
	1981	1986	1995	1971-81	1981-86	1987-95
This Occupation	358,400	392,700	444,300	4.1	1.8	1.3
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation		All Occupations
	1987-95	% of 1987 Jobs	% of 1987 Jobs
Net New Job Openings	43,100	10.7	11.1
Replacement Openings	122,700	30.6	49.2
Total Job Openings	165,800	41.3	60.3

CENSUS – 1971 and 1981 (%)



1981 CENSUS – Main Industries of Employment (%)

Services (43)
- Business Services (15)
- Education (11)
- Oth Health Services (6)

Fin+Ins+Real Estate (13)
- Fin+Ins+Real Estate (13)

Public Administration (13)
- Provincial Admin (6)
- Federal Admin (4)
- Municipal+Oth Gov't (3)

Geographic Distribution of Employment – 1981 (%)

Newfoundland	1.3	Ontario	37.2
Prince Edward Island	0.4	Manitoba	3.2
Nova Scotia	2.9	Saskatchewan	2.9
New Brunswick	2.3	Alberta	10.2
Quebec	30.2	British Columbia	9.3

Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
- College (1981-86)	2,325	46.8
- University (1981-86)	818	16.5
Trade Vocational Schools (1983/84 only)	1,824	36.7

Secretaries and Stenographers

4111

Job Environment

Secretaries, including clerk-stenographers, departmental secretaries, legal secretaries and medical secretaries, perform a variety of office duties — typing, shorthand, answering telephones, opening mail, filing, photocopying and drafting letters. They may be required to understand the technical language used in a particular profession (such as commerce, law or medicine).

The introduction of automated office equipment is redefining secretaries' roles into that of information workers. Word processors and computer word processing software are changing the structure of secretarial work by creating positions such as training specialist, supervisor and director. Since word processors result in higher productivity (one word-processor employee can replace 1.8 typewriter employees), this technology will likely slow the rate of growth of secretarial employment.

Educational Background and Skills

The main training routes leading to employment in these occupations are through courses provided in secondary schools (or commercial secondary schools), vocational schools, community colleges and private institutions such as private business colleges. While the basic requirement for entry is high-school graduation, there is a growing demand for individuals with college education. One- to three-year career programs of community colleges are offered in fields such as general secretary, medical secretary or legal secretary. There is also a Certified Professional Secretarial Program developed by the Professional Secretaries Association that upon successful completion, provides the candidate with the designation C.P.S., which is recognized by employers. Among the students graduating from college programs in secretarial science, most are enrolled in the general secretary field of study. Graduates from related fields of business/commerce or finance may also enter this occupation, as well as university graduates who may also compete when the labour market is weak.

Nature of Supply

On average, it is estimated that 2,300 graduates from community college career programs enter this occupation every year, while another 900 come from universities. This trend will likely persist over the 1987 to 1995 projection period.

For some, this occupation may be an entry position. After a few years of experience and further training, a stenographer/secretary could be promoted into an administrative or management position.

Market Conditions and Job Prospects

Based on the employment outlook for the business services, finance, public administration and education sectors, the employment outlook for this occupational group calls for about average growth over the next eight years. This differs from the 1970s, when employment grew faster than the average rate. During the 1981-1982 recession, employment growth in these occupations was somewhat slower than the average.

Because of the large proportion of employees under 54 years of age, attrition requirements are average and will not likely provide a disproportionately large source of entry during the forecast period.

Employment in this predominately female occupation is steady year-round, with about one job in five being part-time in nature.

Earnings[1]

Wages in this occupation vary according to years of experience and region. In 1986, a junior secretary's annual starting salary averaged $15,912, with senior secretaries hired on at $18,668. Estimated annual average salaries ranged from $18,400 for junior secretaries, to $22,620 for senior secretaries and $23,764 for executive secretaries in 1986. The following are average weekly salary ranges for selected secretarial positions.

Junior Secretary	$278 — $399
Intermediate Secretary	$266 — $451
Senior Secretary	$328 — $490
Executive Secretary	$366 — $515

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[1] Wyatt Company, *Office Personnel Remuneration Survey*, 1986.

Typists and Clerk-Typists

4113

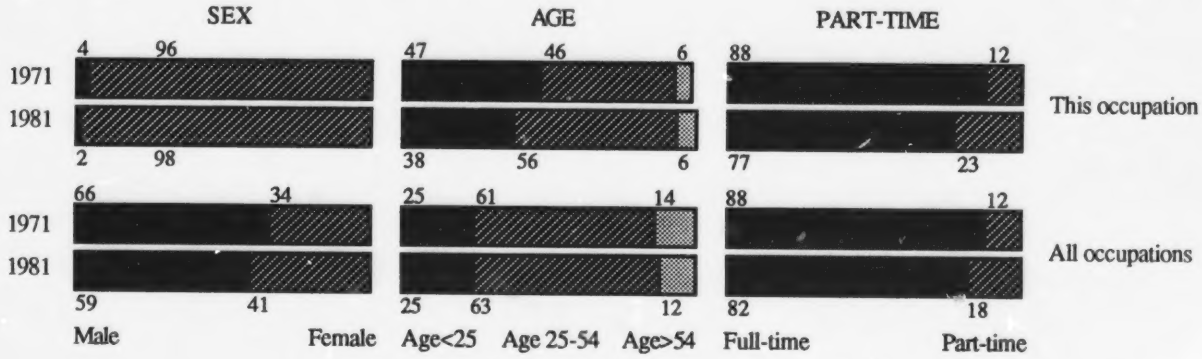
Employment Trends and Projections

	Employment 1981	Employment 1986	Employment 1995	Average Annual Growth Rate (%) 1971-81	Average Annual Growth Rate (%) 1981-86	Average Annual Growth Rate (%) 1987-95
This Occupation	94,300	101,500	113,700	1.6	1.5	1.2
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation 1987-95	This Occupation % of 1987 Jobs	All Occupations % of 1987 Jobs
Net New Job Openings	10,200	9.8	11.1
Replacement Openings	53,900	52.0	49.2
Total Job Openings	64,100	61.9	60.3

CENSUS – 1971 and 1981 (%)



1981 CENSUS – Main Industries of Employment (%)

Services (30)	Public Administration (21)	Fin+Ins+Real Estate (19)
– Business Services (11)	– Provincial Admin (9)	– Fin+Ins+Real Estate (19)
– Education (7)	– Federal Admin (8)	
– Hospitals (5)	– Municipal+Oth Gov't (4)	

Geographic Distribution of Employment – 1981 (%)

Newfoundland	1.7	Ontario	42.6
Prince Edward Island	0.2	Manitoba	4.3
Nova Scotia	2.5	Saskatchewan	3.5
New Brunswick	2.3	Alberta	10.6
Quebec	21.4	British Columbia	10.5

Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
– College (1981-86)	116	28.7
– University (1981-86)	48	11.9
Trade Vocational Schools (1983/84 only)	240	59.4

Typists and Clerk-Typists

4113

Job Environment

This category includes teletypists, transcribing-machine operators, word processing operators and clerk-typists. Depending on their particular function, typists may operate telegraphic-typewriters, composing machines, teleprinters, word processors or typewriters in working environments ranging from a large typing pool to a small office. The introduction of automated office equipment will require employees with diverse qualifications and new skills to operate these machines.

Educational Background and Skills

Typists/clerk-typists should have high-school graduation with a concentration in typing. While this may not be mandatory, the oversupply of qualified candidates for job openings favours those who have completed high school. Those who pursue their education and acquire additional skills in business machines, word processing, microcomputers or oral and written English, are improving their chances of finding employment. Many training programs are offered by community colleges, vocational schools and private training institutions.

Nature of Supply

Graduates from different fields of study, such as Secretarial Sciences and Business and Commerce, enter these occupations. Between 1987 and 1995, it is anticipated that approximately 200 college graduates will enter this occupation annually. Persons re-entering the labour force also represent an important source of new supply. Experienced typists who demonstrate interest and pursue further training may move to secretarial and administrative assistant positions.

This occupational group is composed almost entirely of women. The average age is below the average for the whole labour force. The age structure varied slightly between 1971 and 1981 as the size of the 25 to 54 age category grew.

Market Conditions and Job Prospects

Based on growth prospects for the services, public administration and finance sectors, the employment outlook for this occupational group calls for about average growth over the forecast period. This differs from the 1970s and early 1980s when employment grew at a slower-than-average pace. About 10,200 new jobs will become available in the next eight years. Replacement requirements will provide about 54,000 entry positions over the same period.

Unemployment rates have been improving in these occupations, but are still not as favourable as they were in 1981. Nevertheless, there have recently been lower-than-average unemployment rates in this group.

Employment tends to be steady year-round. Part-time employment is commonplace, occurring in about two jobs out of nine, and it is increasing.

Office automation will have an impact on this group by changing the traditional functions of clerical work. The reorganization of work will likely decrease demand for clerical workers and increase part-time work.

Earnings[1]

Wages in this occupation vary according to years of experience and regions. The estimated annual starting salaries of junior typists (Typist I) was $13,596 across Canada in 1986. This ranged from a low in the Atlantic Provinces of $11,760 to a high of $15,000 in British Columbia. The following table lists the average actual monthly pay, by region, for entrance-level typists (Typist I) and experienced typists (Typist II).

	Typist I	Typist II
Canada	$1,272	$1,435
British Columbia	1,368	1,588
Alberta	1,342	1,469
Saskatchewan	1,414	1,420
Manitoba	1,135	1,318
Ontario	1,271	1,430
Quebec	1,252	1,412
Atlantic Provinces	1,069	1,249

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[1] Based on a 1986 survey conducted by Stevenson, Kellogg, Ernst and Whinney, Management Consultants.

Bookkeepers and Accounting Clerks 4131

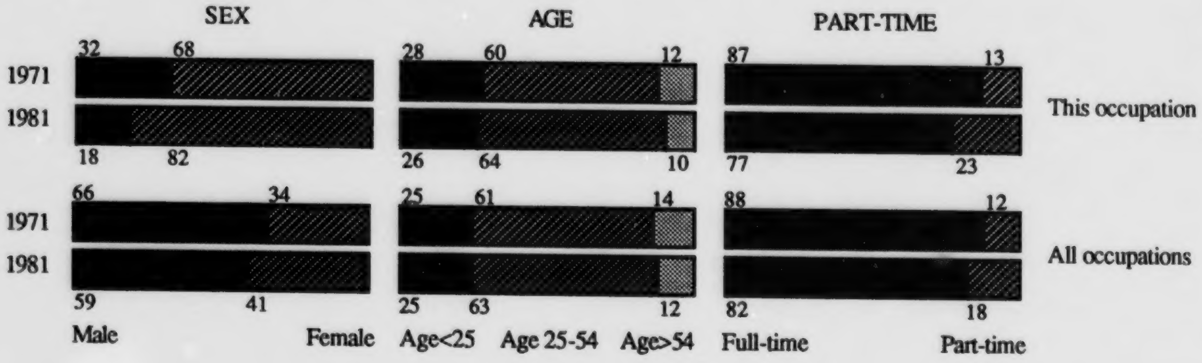
Employment Trends and Projections

	Employment 1981	Employment 1986	Employment 1995	Average Annual Growth Rate (%) 1971-81	Average Annual Growth Rate (%) 1981-86	Average Annual Growth Rate (%) 1987-95
This Occupation	388,700	414,700	465,500	7.2	1.3	1.3
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation 1987-95	This Occupation % of 1987 Jobs	All Occupations % of 1987 Jobs
Net New Job Openings	44,400	10.6	11.1
Replacement Openings	136,800	32.5	49.2
Total Job Openings	181,200	43.0	60.3

CENSUS – 1971 and 1981 (%)



1981 CENSUS – Main Industries of Employment (%)

Trade (25)
- Retail Trade (14)
- Wholesale Trade (11)

Services (21)
- Business Services (9)
- Misc Services (2)
- Accommodation+Food (2)

Manufacturing (16)
- Food+Beverages (2)
- Metal Fabricating (2)
- Printing+Publishing (2)

Geographic Distribution of Employment – 1981 (%)

Newfoundland	1.3	Ontario	38.2
Prince Edward Island	0.3	Manitoba	4.3
Nova Scotia	2.4	Saskatchewan	3.3
New Brunswick	2.0	Alberta	11.3
Quebec	24.0	British Columbia	12.6

For further information, contact:

Ontario Institute of Chartered Accountants
69 Bloor Street East
Toronto, Ontario M4W 1B3
(416) 962-1841 in Toronto
1-800-387-0735 out of Toronto

Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
– College (1981-86)	1,476	43.7
– University (1981-86)	1,124	33.3
Trade Vocational Schools (1983/84 only)	774	22.9

Bookkeepers and Accounting Clerks

4131

Job Environment

This category includes accounting clerks, audit clerks, bookkeeping clerks and payroll clerks. Bookkeepers are primarily responsible for statistical and financial record keeping, maintaining and verifying systematic records and sometimes preparing financial statements. Virtually all bookkeepers use calculating, cheque-writing and bookkeeping machines in performing their duties.

The use of electronic data-processing equipment has led to the creation of specialized fields within this occupation – accounts payable, accounts receivable, payroll, inventory or cost information. The capacity of data processors to maintain numerous records has increased the productivity of bookkeepers, but may reduce the need for clerical staff to a certain extent.

Educational Background and Skills

The minimum qualifications required vary from employer to employer, but most look for individuals who have completed high school with courses in accounting, typing, business and office procedures. Other employers prefer persons with knowledge of mathematics, data-processing techniques and basic accounting principles. Courses in accounting and bookkeeping are offered by trade/vocational schools, community colleges, private educational institutions, and by continuing education programs in universities.

Nature of Supply

The main source of new supply for this occupational group is the formal education system. Other sources augmenting the supply include immigration, re-entrants from the household sector and the military.

These occupations have attracted more and more women during the last 15 years: eight of every 10 persons currently working in this area are women. In 1981, the average age of the group was slightly lower than the reported average for the total labour force. Generally, individuals enter this occupation between the ages of 17 and 24 and start retiring approximately at the age of 60. On this basis, the average career length of a bookkeeper/accounting clerk would be about 40 years. For those who pursue further training and education and who demonstrate strong working skills, there are opportunities for advancement and promotion into supervisory positions.

Market Conditions and Job Prospects

Based on growth prospects for the trade, services and manufacturing sectors, the employment outlook for these occupations calls for about average growth over the forecast period. This differs from the 1970s, when employment grew at a faster-than-average pace.

Advances in microprocessor-based technology and their growing application will deter employment growth for bookkeepers and accounting clerks.

At present, labour market conditions are favourable for bookkeepers, although not to the same extent as before the recession in 1982. However, relative to labour market conditions for other occupations, those for bookkeepers are better than average. Nearly 44,400 new job openings are expected in this occupation over the next eight years. In addition, 137,000 replacement job openings are anticipated over the same period.

Employment in this group is only mildly sensitive to economic conditions. There has been a notable increase in part-time work, but there is no seasonal variation in employment for bookkeeping occupations.

Earnings[1]

Wages in this occupation are affected by the nature of work performed, the experience of the worker and the region of employment. In 1986, the annual average hiring rate for entrance-level accounting clerks was $14,664; for senior-level accounting clerks it was $22,256. Senior bookkeepers' average annual salaries ranged from a minimum of $19,136 to a maximum of $25,948. The following table provides Canada-level average weekly salary ranges and hiring rates for various accounting clerk positions and bookkeepers by region.

Accounting Clerk – Junior	$237 – $411	$318
Accounting Clerk – Intermediate	$276 – $461	$322
Accounting Clerk – Senior	$352 – $580	$468
Bookkeeper – Senior	$383 – $509	–

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[1] Based on *Remuneration Survey of Office Personnel* conducted by the Wyatt Company, 1986.

Cashiers and Tellers

4133

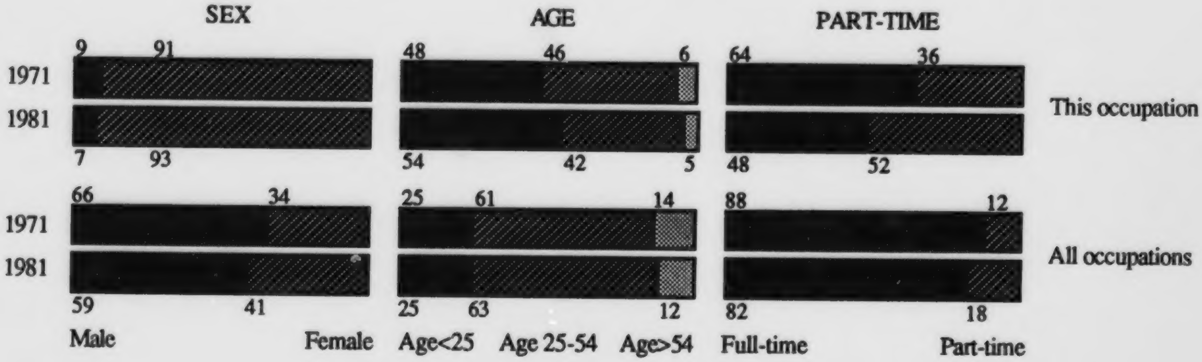
Employment Trends and Projections

	Employment			Average Annual Growth Rate (%)		
	1981	1986	1995	1971-81	1981-86	1987-95
This Occupation	233,400	256,500	294,500	7.8	1.9	1.4
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation		All Occupations
	1987-95	% of 1987 Jobs	% of 1987 Jobs
Net New Job Openings	30,300	11.4	11.1
Replacement Openings	65,400	24.8	49.2
Total Job Openings	95,700	36.2	60.3

CENSUS – 1971 and 1981 (%)



1981 CENSUS – Main Industries of Employment (%)

Trade (54)
- Retail Trade (52)
- Wholesale Trade (1)

Fin + Ins + Real Estate (28)
- Fin + Ins + Real Estate (28)

Services (14)
- Accommodation + Food (9)
- Recreation (3)

Geographic Distribution of Employment – 1981 (%)

Newfoundland	1.7	Ontario	38.0
Prince Edward Island	0.4	Manitoba	3.8
Nova Scotia	3.1	Saskatchewan	3.4
New Brunswick	2.6	Alberta	9.6
Quebec	25.2	British Columbia	11.9

For further information, contact:

Retail, Wholesale and Department Store Union
Suite 310
15 Gervais Drive
Don Mills, Ontario M3C 1Y8
(416) 441-1414

Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
– College (1981-86)	454	42.5
– University (1981-86)	180	16.8
Trade Vocational Schools (1983/84 only)	435	40.7

Cashiers and Tellers

4133

Job Environment

This occupational group comprises bank tellers, disbursement clerks, clerical cashiers, grocery checkers, etc. Their major functions involve receiving and paying out money, keeping records of the transactions and reconciling errors in their records. Adding machines, cash registers or change makers are used in most of these occupations. With the introduction of computers into the workplace, the recording of transactions is now mainly performed electronically.

Educational Background and Skills

The preferred educational requirement for these occupations is a completed high-school diploma, preferably including business courses. Mathematical ability, accuracy, patience, friendly personality and a capacity to work under pressure are considered assets. Employers usually provide on-the-job training lasting from one week to six months.

Nature of Supply

The major sources of new supply to these occupations are secondary schools, trade/vocational schools, community colleges and private business schools. Some firms may also hire university graduates. At the college level, the Business Administration and Secretarial Sciences fields of study are major avenues into this group.

Other sources of supply, such as re-entrants from the household sector, immigration and the military, exist but are of lesser importance than the education system.

This occupation is considered entry level with some possibilities for advancement. Advancement possibilities include customer service representatives, supervisors of cashiers/tellers and managers.

The majority of the cashiers/tellers group are aged less than 24 years, and nine out of every 10 are women. These characteristics have remained the same over the last 15 years. The low average age in this grouping reflects its categorization as an entry-level occupation. Because cashiers/tellers are involved in all types of economic activity, their geographical distribution corresponds to the distribution of the labour force in general.

Market Conditions and Job Prospects

The employment outlook calls for above-average growth into the mid-1990s; this parallels the situation between 1971 and 1981 when employment grew at a faster-than-average pace. However, this trend slowed during the 1981 to 1986 period, when below-average employment growth was recorded.

Approximately 30,000 new job openings are predicted for this group in the next eight years. Since only a small proportion of cashiers and tellers fall in the 54-plus age group, few openings due to retirement and deaths are expected, though turnover for other reasons is high.

On-line computers, automated teller machines and electronic cash registers have changed the nature of work for this occupational group. Productivity has been improved with the amalgamation of job functions in banking and the retail sector, particularly supermarkets, where laser beam scanners are linked to a main computer, automatically pricing items, preparing the bill and revising the store's inventory record all at the same time.

Employment among cashiers and tellers tends to be stable throughout the year despite swings in the overall business climate. Part-time work is prevalent in this occupational area.

Earnings[1]

Wages in these occupations vary regionally and are influenced by the nature of work performed. In 1986, entry-level tellers (Teller I) earned an average annual salary of $15,996, while qualified tellers (Teller II) earned $17,940. The following table illustrates their monthly pay by level and by region.

	Teller I	Teller II
Canada	$1,304	$1,499
British Columbia	1,396	1,600
Alberta	1,320	1,515
Saskatchewan	1,240	1,415
Manitoba	1,203	1,357
Ontario	1,316	1,509
Quebec	1,252	1,400
Atlantic Provinces	1,269	1,490

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[1] Salaries are based on a 1986 salary survey conducted by Stevenson, Kellogg, Ernst and Whinney, Management Consultants.

Insurance, Bank and Other Finance Clerks

4135

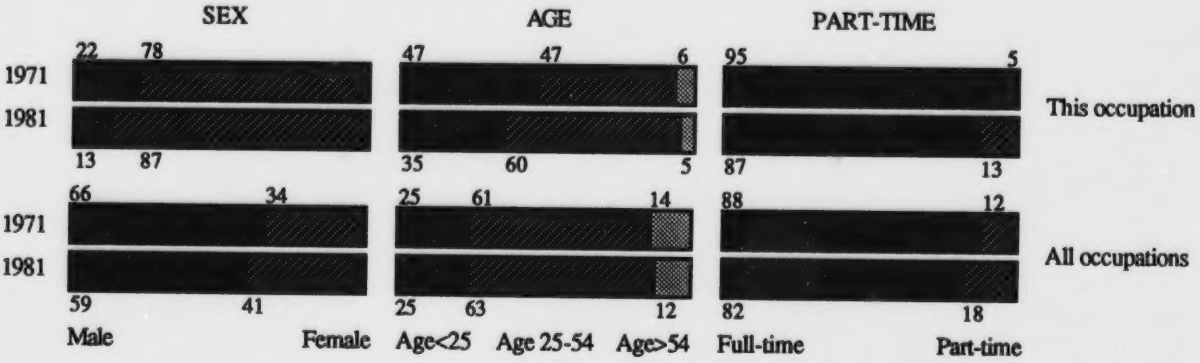
Employment Trends and Projections

	Employment 1981	 1986	 1995	Average Annual Growth Rate (%) 1971-81	 1981-86	 1987-95
This Occupation	40,300	44,400	50,600	7.8	1.9	1.3
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation 1987-95	 % of 1987 Jobs	All Occupations % of 1987 Jobs
Net New Job Openings	4,900	10.7	11.1
Replacement Openings	10,400	22.8	49.2
Total Job Openings	15,300	33.5	60.3

CENSUS – 1971 and 1981 (%)



1981 CENSUS – Main Industries of Employment (%)

Fin+Ins+Real Estate (96) - Fin+Ins+Real Estate (96)	Services (1)	Public Administration (1)

Geographic Distribution of Employment – 1981 (%)

Newfoundland	0.6	Ontario	42.8
Prince Edward Island	0.2	Manitoba	3.8
Nova Scotia	2.0	Saskatchewan	2.6
New Brunswick	1.3	Alberta	9.1
Quebec	24.7	British Columbia	12.8

For further information, contact:

Human Resources
Metropolitan Insurance Co.
Suite 1700
1 University Avenue
Toronto, Ontario M5J 2P2
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Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
- College (1981-86)	88	23.2
- University (1981-86)	169	44.5
Trade Vocational Schools (1983/84 only)	123	32.4

Insurance, Bank and Other Finance Clerks

4135

Job Environment

A finance clerk's duties include processing forms, compiling data, keeping records of transactions and receiving cheques and cash for deposit. To a large extent the work performed is directly related to the institution. Insurance clerks review insurance applications; calculate premiums, dividends, and cash-surrender values; and make insurance policy changes. Bank clerks handle the processing of loan and mortgage applications, check ledgers, keep records, sort deposit slips and cheques, rent safety-deposit boxes, and prepare and distribute bank account statements. Real-estate clerks compile rental, sale and management information.

Educational Background and Skills

Entrants to this occupational group should have at least a high-school diploma, should have good language aptitudes, should be able to work rapidly and accurately with figures and should be familiar with computers and data-processing techniques. The changing regulations governing the financial sector will require a basic knowledge of business administration and finance. Some employers also recruit graduates from trade/vocational schools, community colleges, private educational institutes and even universities. Most will provide newly hired personnel with on-the-job training specific to the firm, lasting between one and 24 months.

Nature of Supply

The main sources of supply are re-entrants from the household sector; graduates from related fields of study are another potential source. Those who are willing to pursue further training or education and demonstrate good potential can move on to other related occupations.

This group is predominantly composed of women. Over the last 15 years, their representation has increased as has the proportion of those between 25 and 54. Generally, a person will enter the occupation between the ages of 20 and 29 and retire at approximately 60 years of age, for an average career length of 30 to 40 years.

Market Conditions and Job Prospects

Based on the growth prospects for the finance sector, the employment outlook for these occupations calls for about average growth over the forecast period. This is a departure from the 1970s, when employment rates grew faster than the average. In the 1981 to 1986 period, finance clerks experienced below-average employment growth. These occupations do not tend to be particularly sensitive to economic conditions.

This occupational group fared better than most occupations through the 1981 to 1986 period despite fairly slow employment growth rates. Current labour market conditions are favourable for finance clerks. Approximately 4,900 new job openings are anticipated for finance clerks during the projection period. Replacement demand is expected to generate 10,000 additional openings.

Office automation has improved efficiency by reducing the repetition of tasks performed by financial clerks. However, employment growth in this occupational group has slowed as a result of these changes.

The incidence of part-time work more than doubled between 1971 and 1981 to 13%. Employment among finance clerks tends to be stable year-round.

Earnings[1]

In 1986, the estimated average annual salaries for finance clerks ranged from $17,316 to $18,772. The following table provides the average weekly salary ranges and average weekly hiring rates for selected financial clerical positions at the Canada level.

Credit and Collection Clerk	$326 – $437	$298
Import/Export Clerk	349 – 418	–
Payroll Clerk – entry	361 – 425	311
Payroll Clerk – senior	456 – 497	398

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[1] Based on a 1986 Canadian survey conducted by the Wyatt Company.

Statistical Clerks 4137

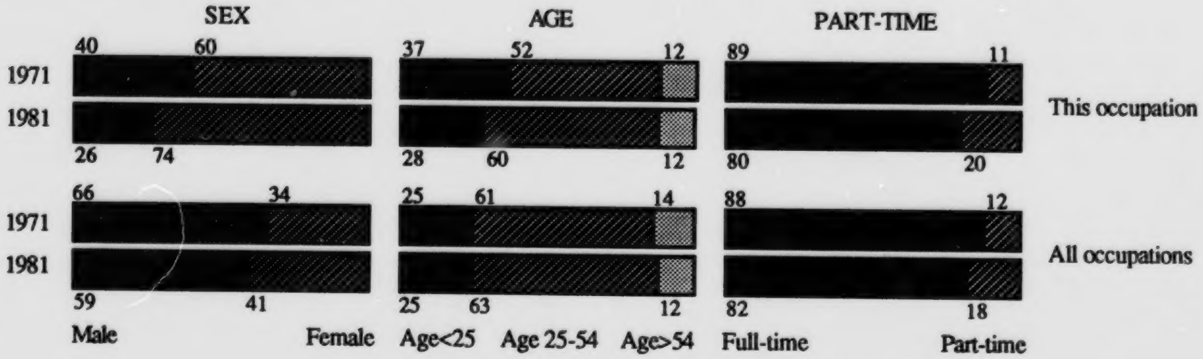
Employment Trends and Projections

	Employment 1981	Employment 1986	Employment 1995	Average Annual Growth Rate (%) 1971-81	Average Annual Growth Rate (%) 1981-86	Average Annual Growth Rate (%) 1987-95
This Occupation	9,400	9,900	10,800	3.6	1.1	1.0
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation 1987-95	This Occupation % of 1987 Jobs	All Occupations % of 1987 Jobs
Net New Job Openings	800	8.4	11.1
Replacement Openings	4,800	47.8	49.2
Total Job Openings	5,600	56.2	60.3

CENSUS – 1971 and 1981 (%)



1981 CENSUS – Main Industries of Employment (%)

Public Administration (45)
- Federal Admin (32)
- Provincial Admin (8)
- Municipal+Oth Gov't (5)

Services (16)
- Business Services (8)
- Hospitals (3)
- Education (2)

Manufacturing (13)
- Printing+Publishing (5)
- Electrical Products (1)

Geographic Distribution of Employment – 1981 (%)

Newfoundland	1.7	Ontario	53.4
Prince Edward Island	0.5	Manitoba	4.7
Nova Scotia	2.6	Saskatchewan	3.2
New Brunswick	2.3	Alberta	6.0
Quebec	15.9	British Columbia	9.5

Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
– College (1981-86)	44	54.3
– University (1981-86)	17	21.0
Trade Vocational Schools (1983/84 only)	20	24.7

Statistical Clerks

4137

Job Environment

This occupational category is composed of actuarial, advertising, statistical research and census clerks. They compile and tabulate statistics for use in statistical studies and for the identification of trends from source documents; prepare reports on source materials; supply factual information to help interpret statistical studies; and verify the authenticity of source material employed for generating statistics. People in this occupation usually work in an office and use adding machines, calculators and computers.

Educational Background and Skills

While the basic requirements may vary according to the employer, the minimum qualification is usually high-school graduation, preferably with a concentration in mathematical courses. As electronic data processing and microcomputers gain widespread use, new recruits should have above-average learning and reasoning capabilities in order to acquire new skills and to familiarize themselves with these electronic tools. Most firms provide their own on-the-job training lasting between six and 12 months.

Nature of Supply

Most persons entering this occupation originate in the household sector. The formal education sector ranks second, with most recruits coming from the secretarial sciences and accounting/bookkeeping fields of study at the trade and college levels. As of 1981, the average educational attainment of those employed as statistical clerks was "some post-secondary education", whereas in 1971, the average had "completed secondary education" only. This shows the trend for increased credentials as a requirement for entering this occupation. For those interested in pursuing further training and education, possibilities for promotion into technical support or research-assistant positions, for example, do exist.

More women than men found work in this occupation over the last decade. Between 1971 and 1981, the representation of women increased from 60% to 75%. The age structure of the group is comparable to the labour force in general, with the predominance being in the 25 to 54 age group. Individuals enter the occupation between the ages of 18 and 28 and begin to retire in their 50s. The majority of statistical clerks (53%) are concentrated in the province of Ontario.

Market Conditions and Job Prospects

Based on employment patterns of the public administration, services and manufacturing sectors, the employment outlook for these occupations calls for less-than-average growth into the mid-1990s. This departs from the situation between 1971 and 1981, but mirrors the early 1980s, when the economic recession slowed employment growth in this occupational group to below average. Approximately 800 new job openings and 4,800 additional replacement job openings are expected to become available in these occupations within the forecast period.

Although unemployment has risen since 1981, it is still below the average for all occupations. This occupational group is usually not affected by changes in the economy, as nearly one half of statistical clerks are employed in the generally stable public administration sector. In addition, most statistical clerical work is full-time in nature and not influenced by seasonal factors. The introduction of new technologies, such as main-frame computers and microprocessors, has had an impact on these occupations, eliminating some of the repetitive tasks performed by statistical clerks. The computerized handling of larger volumes of data implies that skill requirements may change for these occupations. Employment growth may be limited by this factor.

Earnings[1]

Wages for senior statistical clerks ranged from a minimum rate of $20,852 to a maximum rate of $25,532 per year in 1986. The average annual salary for senior statistical clerks was $23,244.

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[1] Based on a 1986 salary survey of office personnel in 127 organizations conducted by the Wyatt Company.

Supervisors: Office Machine and Electronic Data-processing Equipment Operators

4140

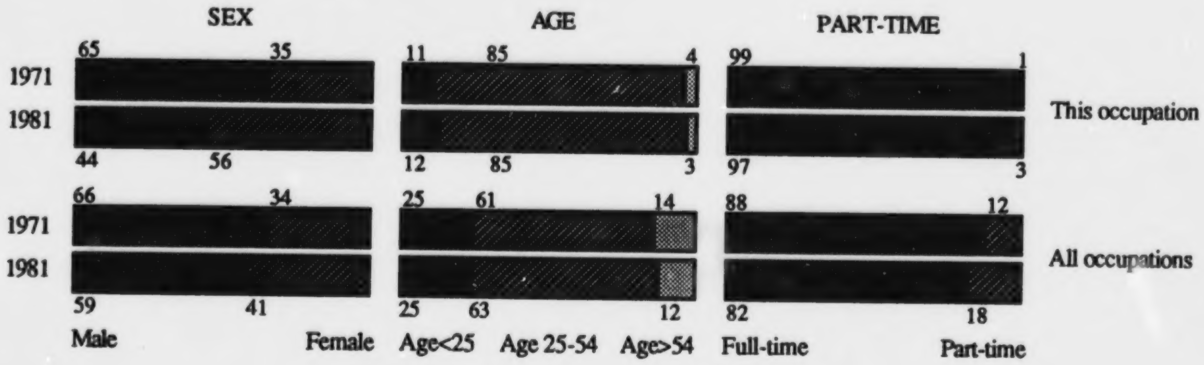
Employment Trends and Projections

	Employment 1981	Employment 1986	Employment 1995	Average Annual Growth Rate (%) 1971-81	Average Annual Growth Rate (%) 1981-86	Average Annual Growth Rate (%) 1987-95
This Occupation	7,700	8,200	9,100	7.5	1.1	1.2
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation 1987-95	This Occupation % of 1987 Jobs	All Occupations % of 1987 Jobs
Net New Job Openings	800	9.6	11.1
Replacement Openings	2,300	27.6	49.2
Total Job Openings	3,100	37.2	60.3

CENSUS – 1971 and 1981 (%)



1981 CENSUS – Main Industries of Employment (%)

Services (19)	Fin + Ins + Real Estate (19)	Public Administration (18)
- Business Services (13)	- Fin + Ins + Real Estate (19)	- Federal Admin (11)
- Education (3)		- Provincial Admin (6)
		- Municipal + Oth Gov't (1)

Geographic Distribution of Employment – 1981 (%)

Newfoundland	0.7	Ontario	51.6
Prince Edward Island	0.1	Manitoba	4.8
Nova Scotia	2.7	Saskatchewan	2.3
New Brunswick	1.4	Alberta	10.9
Quebec	14.7	British Columbia	11.8

Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
- College (1981-86)	8	21.6
- University (1981-86)	16	43.2
Trade Vocational Schools (1983/84 only)	13	35.1

Supervisors: Office Machine and Electronic Data-Processing Equipment Operators

4140

Job Environment

This category includes addressograph supervisors, supervisors of office machine operators, supervisors of computer operators and tabulating supervisors. Postage meters, computers, addressing equipment, photocopy machines, electronic collators, bookkeeping machines, blue printing and billing machines all fall within the category of office machinery. A computer operations shift supervisor assigns, co-ordinates and schedules the activities of all computer operators on the shift. Supervisors of office machine operators are responsible for monitoring communications, responding to problems, and co-ordinating communication network testing with local/remote sites, common carriers and the computer room master console.

Educational Background and Skills

Companies recruit office machine or EDP equipment supervisors from among their most competent and willing operators who generally have completed Grade 12 with an emphasis in mathematics as a minimum qualification. According to 1984 data, 36% of people in these occupations had a university degree, with the majority specializing in education or commerce; those who graduated from a community college (33%) had been in the secretarial field of study, while trade vocational program graduates (31%) were mainly in mathematics and computer science.

Nature of Supply

Besides those people who entered these occupations from operators' jobs, and from the formal education system, individuals re-entering the labour force after some period of separation were also a significant source of supply. While movement between occupations can not yet be measured with precision, preliminary data indicate that people moving into the occupation from related ones outnumber those who leave.

Women now predominate in this occupation in contrast with their minority representation in 1971. The average age (35) has remained fairly constant since 1971. Most individuals enter this occupation between the ages of 25 and 29, and begin to leave between 45 and 49 years of age, implying an average career span of 20 years.

Market Conditions and Job Prospects

The employment outlook for supervisors, office machine and EDP equipment operators calls for about average growth over the next eight years. This differs from the situation between 1971 and 1981 when employment grew at a faster-than-average pace. Employment in these occupations can be affected by changes in overall economic conditions, as witnessed by the negative employment growth during the 1981-1982 recession.

This occupational group has one of the lowest unemployment rates in the labour market. Approximately 800 new job openings are expected to become available for EDP supervisors during the forecast period. Since only a small proportion of these supervisors are in the 54-plus age group, very few of these openings will be the result of deaths and retirements. Part-time work is not significant in this occupation, and employment tends to be stable year-round.

Earnings[1]

Salaries in this occupation are influenced by the complexity of equipment used, by the number of staff reporting to the operations supervisor, and by region. For example, a first-level operations supervisor works with a small computer and supervises a few operators, while a third-level operations supervisor works with a large computer system and is responsible for supervising six or more operators. The following table provides average annual monthly pay rates by region in Canada.

	Operations Supervisor I	Operations Supervisor II	Operations Supervisor III
All Canada	$2,360	$2,712	$3,123
British Columbia	2,744	2,862	3,471
Alberta	2,624	2,641	3,121
Saskatchewan	—	—	—
Manitoba	—	—	2,909
Ontario	2,271	2,715	3,122
Quebec	—	—	—
Atlantic Provinces	1,603	1,952	2,471

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[1] These salaries are based on a 1986 survey conducted by Stevenson, Kellogg, Ernst and Whinney of administrative, finance and data-processing positions for a number of supervisory occupations related to the data-processing equipment industry.

Electronic Data-Processing Equipment Operators 4143

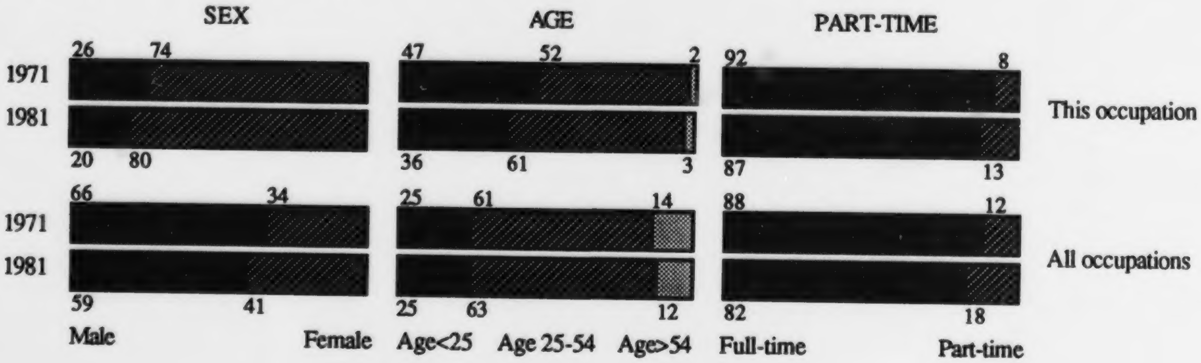
Employment Trends and Projections

	Employment 1981	Employment 1986	Employment 1995	Average Annual Growth Rate (%) 1971-81	Average Annual Growth Rate (%) 1981-86	Average Annual Growth Rate (%) 1987-95
This Occupation	73,400	77,800	86,800	11.0	1.2	1.2
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation 1987-95	This Occupation % of 1987 Jobs	All Occupations % of 1987 Jobs
Net New Job Openings	7,800	9.8	11.1
Replacement Openings	13,100	16.6	49.2
Total Job Openings	20,900	26.4	60.3

CENSUS – 1971 and 1981 (%)



1981 CENSUS – Main Industries of Employment (%)

Services (22)	Manufacturing (18)	Public Administration (16)
- Business Services (13)	- Food+Beverages (2)	- Federal Admin (8)
- Education (4)	- Electrical Products (2)	- Provincial Admin (6)
- Misc Services (1)	- Printing+Publishing (2)	- Municipal+Oth Gov't (2)

Geographic Distribution of Employment – 1981 (%)

Newfoundland	0.9	Ontario	48.1
Prince Edward Island	0.2	Manitoba	4.5
Nova Scotia	2.1	Saskatchewan	2.4
New Brunswick	1.6	Alberta	10.5
Quebec	18.6	British Columbia	11.3

Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
- College (1981-86)	758	43.2
- University (1981-86)	465	26.5
Trade Vocational Schools (1983/84 only)	530	30.2

Electronic Data-Processing Equipment Operators

4143

Job Environment

This occupational category includes persons who operate electronic and electro-mechanical machines that record, store, process and transcribe data to and from punch cards, paper tape, magnetic tape or other sources. Computer operators, data processors and key-punch operators are examples of some of the occupations in this unit. Computer operators execute instructions prepared by computer programmers, schedule programs entered through remote terminals, monitor peripheral machines and keep records of operating times. When a problem is encountered, they take corrective measures or report the malfunction to the appropriate maintenance people. Persons in this occupation work with a variety of electronic machinery and may be exposed to machine-related noise. Shift work and overtime are occasionally required.

Educational Background and Skills

Individuals entering these occupations typically have Grade 12 with mathematics, as some firms like to hire high-school graduates and train them on the job for six months to two years. Other firms may hire applicants who pass the company's qualifying exam and who have experience in data processing. Graduation from a one- to three-year community college program is an asset.

Nature of Supply

Of those who complete a university degree, the majority specialize in the social sciences, especially commerce or psychology. Community college graduates are usually from the secretarial or computer science fields.

Individuals re-entering the labour force after some period of separation are also a significant source of supply to this occupation; immigration is a minor contributor.

Although jobs in this occupation have been predominately held by women in the past, the number of men has increased since 1971. The majority are in Ontario (48%), Quebec (19%), British Columbia (11%) and Alberta (10%). The average age increased slightly from 28 in 1971 to 30 in 1981. Most individuals enter this occupation between the ages of 20 and 24 and begin to leave between 60 and 64 years of age, for an average career span of 40 years.

Market Conditions and Job Prospects

The employment outlook for this occupation calls for average growth into the mid-1990s, based on growth prospects for the services, manufacturing and public administration sectors. This differs from trends during the 1970s, when employment grew at a faster-than-average pace. Approximately 20,900 job openings will be generated in the next eight years. Few of these will be attributable to death and retirement, as only a small proportion of employees in this occupation are in the 54-plus age category.

At present, electronic data-processing operators are facing the same rates of unemployment as the labour force at large. The group is moderately susceptible to general economic conditions. Part-time work has increased; however, the work is not seasonal.

Technological changes will continue to affect employment growth in this field as the growing use of micro and personal computers by end-users is lowering the need for key-punch operators.

Earnings[1]

Wages in this occupation vary according to the functions performed by the computer operator and according to province. A computer Operator I (junior level operator) assists in operating a computer, while a Computer Operator III (senior level operator) monitors and controls the overall operation of medium to large computers and has some supervisory responsibilities. The following table illustrates 1986 average monthly pay rates by region at the three computer operator levels.

	Computer Operator I	Computer Operator II	Computer Operator III
Canada	$1,541	$1,819	$2,113
British Columbia	1,894	2,055	2,361
Alberta	1,551	1,812	2,195
Saskatchewan	—	1,914	—
Manitoba	1,327	1,611	2,003
Ontario	1,491	1,744	2,018
Quebec	—	1,813	2,319
Atlantic Provinces	1,456	1,699	1,880

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[1] Based on a 1986 survey conducted by Stevenson, Kellogg, Ernst and Whinney of administrative, finance and data-processing positions at various levels.

Production Clerks

4151

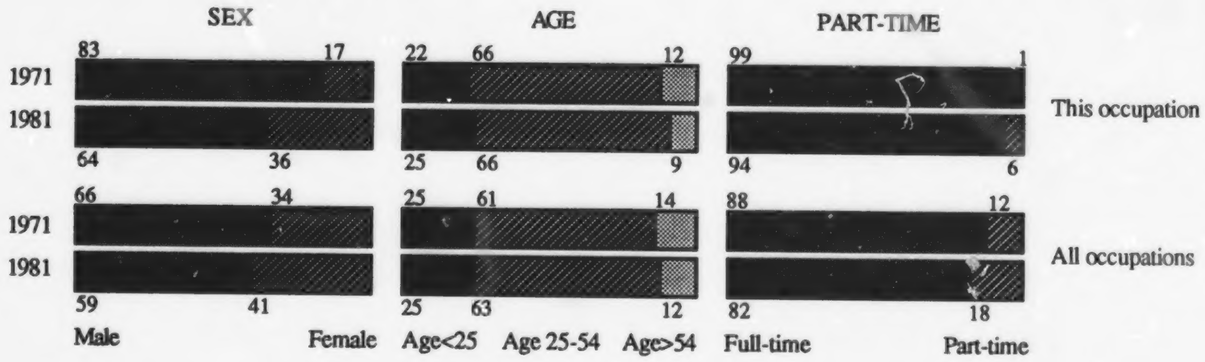
Employment Trends and Projections

	Employment 1981	Employment 1986	Employment 1995	Average Annual Growth Rate (%) 1971-81	Average Annual Growth Rate (%) 1981-86	Average Annual Growth Rate (%) 1987-95
This Occupation	17,400	17,400	19,400	3.5	0.0	1.2
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation 1987-95	This Occupation % of 1987 Jobs	All Occupations % of 1987 Jobs
Net New Job Openings	1,800	10.1	11.1
Replacement Openings	8,100	45.7	49.2
Total Job Openings	9,800	55.8	60.3

CENSUS – 1971 and 1981 (%)



1981 CENSUS – Main Industries of Employment (%)

Manufacturing (65)
- Electrical Products (7)
- Machinery (6)
- Metal Fabricating (6)

Trade (13)
- Wholesale Trade (7)
- Retail Trade (6)

Services (7)
- Business Services (3)

Geographic Distribution of Employment – 1981 (%)

Newfoundland	0.8	Ontario	58.2
Prince Edward Island		Manitoba	3.2
Nova Scotia	1.8	Saskatchewan	1.2
New Brunswick	1.0	Alberta	5.6
Quebec	22.0	British Columbia	6.9

Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
– College (1981-86)	58	40.0
– University (1981-86)	33	22.8
Trade Vocational Schools (1983/84 only)	54	37.2

Production Clerks

4151

Job Environment

Production clerks (including production co-ordinators, schedule clerks and expediters) co-ordinate and expedite the flow of work and materials between departments or plants. This entails examining orders for goods and services, preparing work and production schedules, and compiling records and reports. Production clerks often work in a factory setting. A five-day work week of 37 to 40 hours is normal. Shift work is not uncommon.

Educational Background and Skills

The minimum qualification for this occupation is a high-school diploma, preferably with courses in mathematics, typing, business machines and accounting. In addition, most employers will provide new entrants with on-the-job training that may last from three to 12 months. Applicants should be able to keep good records and to read and follow detailed instructions correctly and quickly.

Nature of Supply

Graduates from the formal education system, especially secondary schools, trade-level vocational schools and community colleges, and re-entrants into the labour force are the main source of supply for these occupations. Usually people start working between the ages of 18 and 30 and leave in their 50s, implying a career length of approximately 25 to 30 years. On average, men leave the occupation sooner than women. Women have been entering this occupation in growing numbers; their representation doubled between 1971 and 1981 when they accounted for 36% of the production clerk labour force.

Market Conditions and Job Prospects

Since 75% of production clerks work in the manufacturing and trade sectors, this group tends to be affected by economic conditions as they affect these sectors. For example, the 1981-1982 recession lowered employment of production clerks in 1982 and 1983. Current projections indicate a more optimistic future as employment is expected to increase by 10% over the forecast period.

Labour market conditions for production clerks have improved since 1983. In comparison to other occupations, they face lower-than-average unemployment rates, and approximately 1,800 new job openings will be created within the next eight years, as well as 8,000 replacement job openings caused by people leaving the active labour force.

The nature of work is full-time and is not affected by seasonal factors. Statistical Process Control (SPC) systems, computerized inventory systems, automated scheduling and other technological innovations will reduce the growth of demand for production clerks.

Shipping and Receiving Clerks 4153

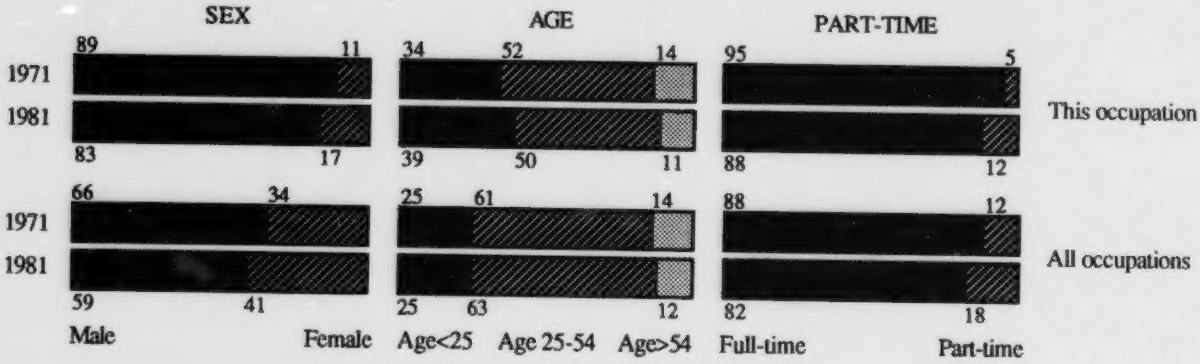
Employment Trends and Projections

	Employment 1981	Employment 1986	Employment 1995	Average Annual Growth Rate (%) 1971-81	Average Annual Growth Rate (%) 1981-86	Average Annual Growth Rate (%) 1987-95
This Occupation	88,800	91,200	99,700	3.7	0.5	1.1
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation 1987-95	This Occupation % of 1987 Jobs	All Occupations % of 1987 Jobs
Net New Job Openings	8,200	8.9	11.1
Replacement Openings	42,700	46.7	49.2
Total Job Openings	50,900	55.6	60.3

CENSUS – 1971 and 1981 (%)



1981 CENSUS – Main Industries of Employment (%)

Manufacturing (43)	Trade (39)	Trans+Stor+Comm+Util (9)
- Food+Beverages (7)	- Wholesale Trade (22)	- Misc Transport (3)
- Metal Fabricating (4)	- Retail Trade (17)	- Rail Transport (2)
- Clothing+Knitting (3)		- Storage (2)

Geographic Distribution of Employment – 1981 (%)

Newfoundland	0.8	Ontario	46.5
Prince Edward Island	0.1	Manitoba	4.6
Nova Scotia	1.8	Saskatchewan	2.3
New Brunswick	1.5	Alberta	8.3
Quebec	23.8	British Columbia	10.0

Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
- College (1981-86)	177	32.2
- University (1981-86)	82	14.9
Trade Vocational Schools (1983/84 only)	290	52.8

Shipping and Receiving Clerks

4153

Job Environment

Examples of occupations in this classification are delivery checker, freight clerk and warehouse receiver. A shipping clerk's main responsibilities are to co-ordinate the shipment of goods to customers and to keep up-to-date inventory records. Other duties include assembling, packing, addressing and loading goods for delivery. This work is performed indoors, and requires physical movement such as lifting, carrying and reaching. Receiving clerks perform the inverse of these functions. They receive, unpack, inspect, sort and record incoming goods. In many instances, these responsibilities are combined in a single job.

Educational Background and Skills

No specific field of study leads to employment in this group. Over the past few years, the educational requirement for entry into the occupation has changed from Grade 10 to high-school graduation.

Most shippers start out as warehouse workers and may be asked to move into a shipper's position, if they prove competent and demonstrate an interest in paperwork. Since all firms have their own operating standards, new shippers must undergo on-the-job training varying from four to six weeks. Desirable qualities for shipping and receiving clerks are good mathematical skills and an aptitude for detailed, accurate work.

Nature of Supply

Secondary school graduates are the major source of new supply to this occupation. Some employers also hire trade/vocational school graduates and community college and university graduates, but this is not a common practice. Other important sources of supply are individuals re-entering the labour force who possess the basic qualifications.

Four out of 10 persons in this occupation are under 25 years of age, a much higher proportion than in the general labour force. Women represented 17% of all workers in this occupation in 1981, compared with 11% in 1971, which indicates that more women are entering this non-traditional occupation. Most shipping and receiving clerks work in Quebec (24%) and Ontario (46%).

Many clerks view this occupation as an entry-level one leading to a higher position. They first familiarize themselves with the type of work done in the industry; then, with experience and further training, they move to other occupations with more responsibility.

Market Conditions and Job Prospects

As a result of the 1981-1982 recession, employment in this occupation declined substantially in 1982 and 1983. However, moderate employment growth is projected for the future. Since most shipping clerks are employed in the manufacturing and trade sectors, they tend to be affected by prevailing economic conditions.

About 8,200 new shipping clerk job openings are anticipated over the next eight years. Replacement job openings are also expected to be numerous, reflecting the high rate of turnover in this occupational category. Labour market conditions for shipping clerks are at present just slightly better than those experienced in other occupations.

Part-time employment increased noticeably between 1971 and 1981. Work in this occupation is only slightly seasonal. New technological innovations such as point of sale (P.O.S.) systems with on-line inventory control features may limit employment growth in this occupation.

Stock Clerks and Related Occupations

4155

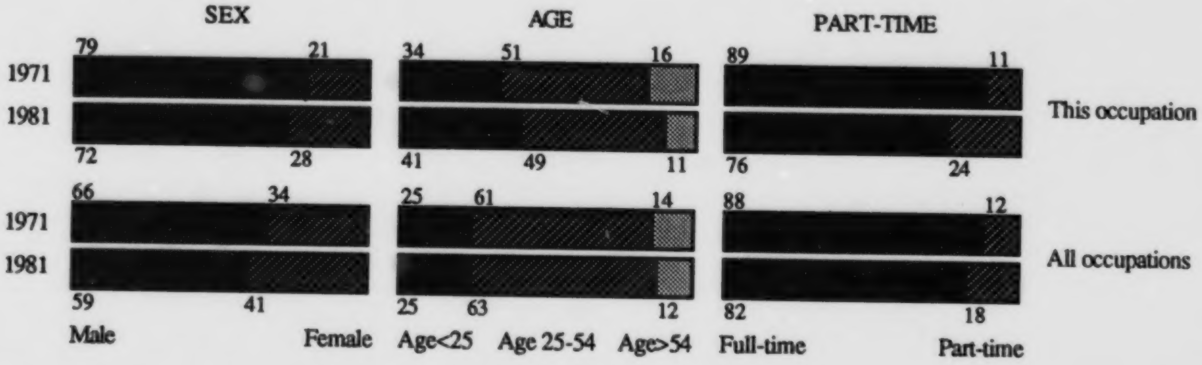
Employment Trends and Projections

	Employment 1981	Employment 1986	Employment 1995	Average Annual Growth Rate (%) 1971-81	Average Annual Growth Rate (%) 1981-86	Average Annual Growth Rate (%) 1987-95
This Occupation	96,200	101,300	112,200	6.0	1.0	1.1
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation 1987-95	This Occupation % of 1987 Jobs	All Occupations % of 1987 Jobs
Net New Job Openings	9,600	9.3	11.1
Replacement Openings	38,000	37.0	49.2
Total Job Openings	47,500	46.3	60.3

CENSUS – 1971 and 1981 (%)



1981 CENSUS – Main Industries of Employment (%)

Trade (47)	Manufacturing (23)	Services (12)
- Retail Trade (35)	- Motor Veh+Trls+Parts (3)	- Hospitals (3)
- Wholesale Trade (12)	- Machinery (2)	- Education (3)
	- Electrical Products (2)	- Business Services (2)

Geographic Distribution of Employment – 1981 (%)

Newfoundland	1.4	Ontario	40.8
Prince Edward Island	0.3	Manitoba	4.2
Nova Scotia	3.5	Saskatchewan	2.9
New Brunswick	2.5	Alberta	9.6
Quebec	24.2	British Columbia	10.3

For further information, contact:

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15 Gervais Drive
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(416) 441-1414

Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
- College (1981-86)	144	39.3
- University (1981-86)	65	17.8
Trade Vocational Schools (1983/84 only)	157	42.9

Stock Clerks and Related Occupations

4155

Job Environment

Central supply clerk, inventory clerk, material keeper, purchasing clerk, and stockroom attendant are occupations representative of this classification. Stock clerks are the contact point between the customer department and the supplying department. They are responsible for receiving, storing and distributing supplies, and monitoring and replenishing inventory, as required. They must therefore have an orderly and systematic approach to locating items. Stock clerks also prepare the necessary paperwork to maintain an inventory. Depending on the employer and the type of stock, clerks may have to work in cold, drafty warehouses and handle large, heavy items.

Educational Background and Skills

The minimum qualification necessary to enter this occupation is a high-school diploma. Employers usually provide new recruits with additional on-the-job training under the supervision of an experienced worker for a period varying from three to 24 months. Employers look for persons with good mathematical skills, the ability to perform fast and accurate calculations and a capacity for detailed work. Candidates who have followed courses in business and administration at the trade or college level have an added advantage. Promotion and advancement, as in many other clerk positions, are possible for experienced clerks who are willing to undertake further education and training. Supervisory positions as well as administrative occupations then become accessible.

Nature of Supply

Graduates from the secondary school system are the main source of new supply to this occupation. However, persons re-entering the labour force are also a substantial source of new stock clerks. Based on the 1981 census, the average educational attainment of employees in this occupation is a high-school diploma.

The age structure of workers in this occupation suggests that for many, the position of stock clerk represents the beginning of their careers, as a higher-than-average proportion are in the 15 to 24 age group. Women are still under-represented in this occupation, although the proportion of female stock clerks increased from 21% in 1971 to 28% in 1981.

Market Conditions and Job Prospects

Future employment growth is expected to be average in this occupation, although it will not be as strong as growth predicted for the overall economy. Since nearly 80% of stock clerks are employed in trade or manufacturing, fluctuations in economic conditions affecting these two industries also influence employment in this occupational group. This responsiveness is reflected in the decline in employment that occurred in 1982 and 1983 as a result of the 1981-1982 recession.

A total of 9,600 new jobs are projected for the next eight years. The majority of openings, however, will be created by replacement demand, which is expected to reach 38,000 positions over the forecast interval. Current labour market conditions are better than average for stock clerks, although unemployment rates remain higher than prerecession levels.

There has been a notable increase in the incidence of part-time work in this occupational group. In 1981, 24% of stock clerks worked part-time compared to only 10% in 1971. Employment among stock clerks tends to be stable year-round. Greater use of computerized inventory systems may reduce the need for these clerks or simply create new skill requirements for those in the field.

Receptionists and Information Clerks

4171

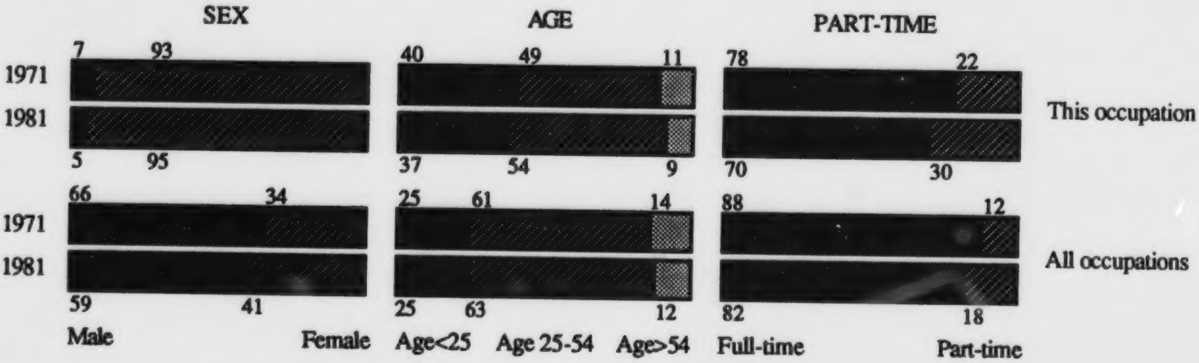
Employment Trends and Projections

	Employment 1981	Employment 1986	Employment 1995	Average Annual Growth Rate (%) 1971-81	Average Annual Growth Rate (%) 1981-86	Average Annual Growth Rate (%) 1987-95
This Occupation	91,100	103,900	117,100	7.2	2.7	1.3
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation 1987-95	This Occupation % of 1987 Jobs	All Occupations % of 1987 Jobs
Net New Job Openings	11,100	10.5	11.1
Replacement Openings	27,800	26.2	49.2
Total Job Openings	38,900	36.7	60.3

CENSUS – 1971 and 1981 (%)



1981 CENSUS – Main Industries of Employment (%)

Services (51)
- Oth Health Services (19)
- Hospitals (11)
- Business Services (8)

Trade (11)
- Retail Trade (6)
- Wholesale Trade (5)

Public Administration (10)
- Federal Admin (4)
- Provincial Admin (3)
- Municipal+Oth Gov't (2)

Geographic Distribution of Employment – 1981 (%)

Newfoundland	1.0	Ontario	37.6
Prince Edward Island	0.3	Manitoba	4.0
Nova Scotia	2.3	Saskatchewan	2.9
New Brunswick	1.6	Alberta	11.9
Quebec	23.6	British Columbia	14.5

Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
- College (1981-86)	326	32.7
- University (1981-86)	279	28.0
Trade Vocational Schools (1983/84 only)	393	39.4

Receptionists and Information Clerks

4171

Job Environment

Receptionists greet clients, direct people to appropriate offices, answer questions, and perform clerical duties, such as making appointments, answering correspondence or proofreading documents. This occupational group includes admitting clerks, appointment clerks and telephone clerks. Receptionists generally work in a reception area, although in small businesses and in some accommodation establishments they may be located at the front of the general office.

Educational Background and Skills

The combination of education and the characteristics of the candidate is usually the most important qualification to become a receptionist and information clerk. People interested in working in this area should enjoy dealing with people, be friendly, polite and personable. Some employers prefer a candidate with a high-school diploma with concentration in commerce and typing courses, others might choose a candidate with less formal education but with previous office experience and related experience dealing with the public.

Nature of Supply

The major sources of entry into this occupation are people from the secondary school systems, persons re-entering the labour market and graduates from trade/vocational schools and community colleges. The graduates usually originate from the secretarial sciences and business administration courses. This occupation may be considered an entry-level occupation; it offers opportunities to learn the organization of the firm and the type of people or customer with whom the firm deals. There are possibilities for advancement into secretarial and other administrative positions for those who are willing to pursue further training.

This occupation is predominantly composed of women, a situation that has not changed much over the last fifteen years. The average age is lower than that of the labour force as a whole: approximately four out of every 10 people in this occupation are aged between 15 and 24 years.

Market Conditions and Job Prospects

The employment outlook for this occupation calls for about average growth over the forecast period. This is a departure from the situation between 1971 and 1981 when employment grew at a faster-than-average pace, but continues the trend of the early 1980s when employment progressed at the same rate as the overall pace. By 1995, it is expected that there will be more than 11,000 new job openings for receptionists. An additional 28,000 job openings are anticipated to replace personnel leaving receptionist positions.

The fairly high current rates of unemployment in this occupation indicate that competition for job vacancies may be quite stiff.

This occupation is not affected very much by changing business conditions. Employment is stable throughout the year, with a preponderance of part-time work.

Earnings[1]

The average actual monthly pay of receptionists in 1986 was as follows:

Canada	$1,361
British Columbia	1,428
Alberta	1,376
Saskatchewan	1,436
Manitoba	1,271
Ontario	1,365
Quebec	1,328
Atlantic Provinces	1,245

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[1] These salaries are based on a 1986 survey of administrative, finance and data-processing positions conducted by Stevenson, Kellogg, Ernst and Whinney.

Mail and Postal Clerks

4173

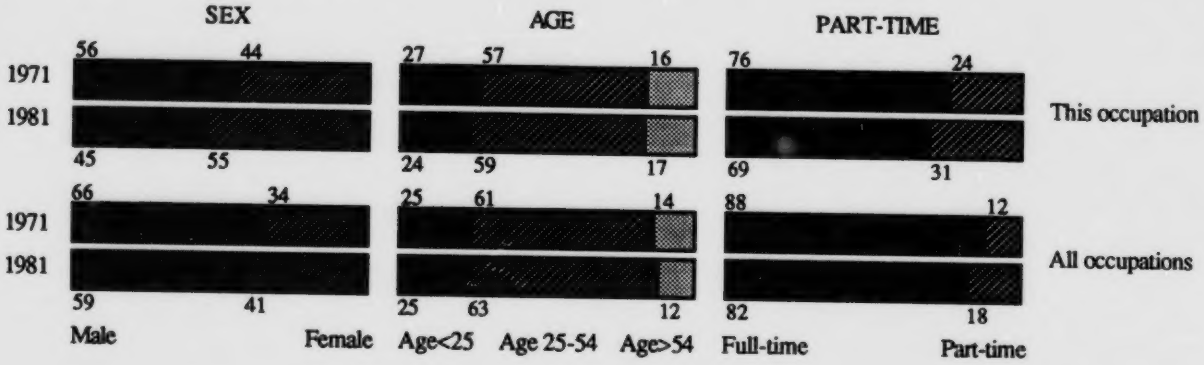
Employment Trends and Projections

	Employment			Average Annual Growth Rate (%)		
	1981	1986	1995	1971-81	1981-86	1987-95
This Occupation	41,800	52,000	58,700	3.4	4.4	1.4
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation		All Occupations
	1987-95	% of 1987 Jobs	% of 1987 Jobs
Net New Job Openings	6,100	11.6	11.1
Replacement Openings	21,700	41.2	49.2
Total Job Openings	27,800	52.8	60.3

CENSUS – 1971 and 1981 (%)



1981 CENSUS – Main Industries of Employment (%)

Trans+Stor+Comm+Util (75)
- Post Office (73)

Public Administration (6)
- Federal Admin (3)
- Provincial Admin (2)

Services (5)
- Business Services (2)
- Education (1)

Geographic Distribution of Employment – 1981 (%)

Newfoundland	2.0	Ontario	42.3
Prince Edward Island	0.4	Manitoba	4.6
Nova Scotia	3.1	Saskatchewan	4.1
New Brunswick	2.6	Alberta	8.7
Quebec	21.2	British Columbia	11.1

For further information, contact:

Compensation Benefits
Canada Post Corporation
Confederation Heights
Ottawa, Ontario K1A 0B1
(613) 991-2153

Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
– College (1981-86)	50	54.3
– University (1981-86)	0	0.0
Trade Vocational Schools (1983/84 only)	42	45.7

Mail and Postal Clerks

4173

Job Environment

Mail sorters, postal office clerks and wicket-postal clerks are three examples of occupations found in this category. A mail clerk sorts and stamps the date and time of receipt on incoming mail, sorts outgoing mail and addresses mail using an address machine. Wicket-postal clerks handle cash, sell and account for stamps and other supplies. They also register, certify and insure mail. Postal clerks are normally required to work different shifts.

Educational Background and Skills

The basic educational requirement to enter this occupation varies from a Grade 10 to a high-school diploma. The employer usually provides new employees with on-the-job training lasting for one to three months. Mail and postal clerks should be able to perform routine work well under given rules and directions. Good eye-to-hand coordination, finger dexterity, good memory and ability to read rapidly and accurately are needed for both hand-sorting and machine-sorting of mail.

Nature of Supply

Most people come into this occupation directly from the secondary school system; the second most important source of new supply is made up of re-entrants into the labour force from the household sector. For some, this occupation may be considered an entry-level position leading into other jobs in administrative services or operational supervision. However, an above-average proportion are aged 55 years and over, suggesting that for many, it becomes a career.

During the 1970s, this occupation was predominantly composed of men but this situation has reversed since then. By 1981, 55% of mail and postal clerks were women.

Market Conditions and Job Prospects

The employment outlook for this occupation calls for about average growth over the next eight years. This parallels the situation between 1971 and 1981 when employment grew at about the overall average pace. Approximately 5,700 new job openings are expected to become available by 1995. The higher-than-average proportion of mail-postal workers in the 54-plus age group will create a good number of replacement openings.

In 1986, current rates of unemployment in this classification were among the lowest in the country.

This occupation tends to be rather insulated from changing economic conditions though employment may be affected by decisions regarding the country's postal service. Part-time work has increased to the point where nearly one job in three is part-time. The introduction of coding machines, which has increased the volume of mail sorted per worker, will constrain future employment growth for this group.

Earnings

According to the Canadian Union of Postal Workers the starting wage rate for mail and postal workers in 1987 was $13.68 per hour. The average salary for all postal workers was $28,000 per annum.

Claims Adjusters

4192

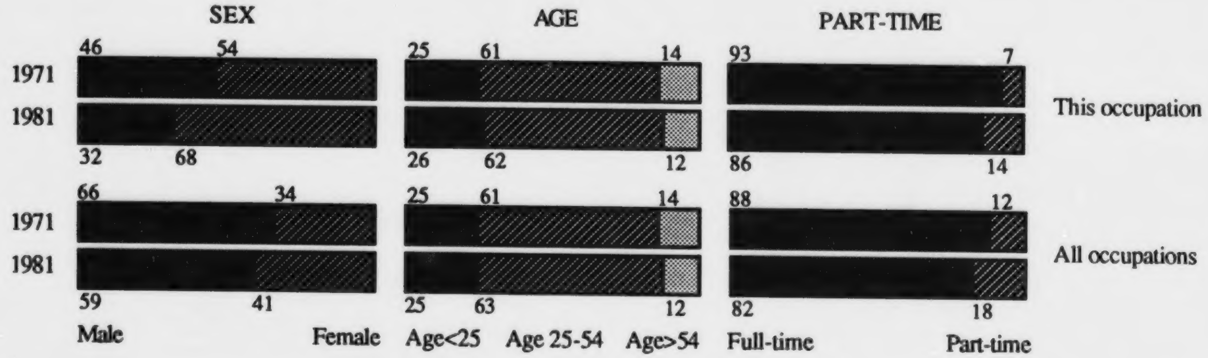
Employment Trends and Projections

	Employment 1981	Employment 1986	Employment 1995	Average Annual Growth Rate (%) 1971-81	Average Annual Growth Rate (%) 1981-86	Average Annual Growth Rate (%) 1987-95
This Occupation	9,300	9,900	11,000	4.2	1.2	1.1
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation 1987-95	This Occupation % of 1987 Jobs	All Occupations % of 1987 Jobs
Net New Job Openings	900	9.0	11.1
Replacement Openings	4,100	40.5	49.2
Total Job Openings	5,000	49.5	60.3

CENSUS – 1971 and 1981 (%)



1981 CENSUS – Main Industries of Employment (%)

Fin + Ins + Real Estate (26)
- Fin + Ins + Real Estate (26)

Public Administration (22)
- Provincial Admin (12)
- Federal Admin (8)
- Municipal + Oth Gov't (2)

Trade (21)
- Retail Trade (18)
- Wholesale Trade (3)

Geographic Distribution of Employment – 1981 (%)

Newfoundland	1.9	Ontario	51.3
Prince Edward Island	0.3	Manitoba	4.6
Nova Scotia	3.6	Saskatchewan	3.1
New Brunswick	3.0	Alberta	9.6
Quebec	11.2	British Columbia	11.7

For further information, contact:

The Insurance Institute of Canada
Suite 600
481 University Avenue
Toronto, Ontario M5G 2E9
(416) 591-1572

Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
– College (1981-86)	4	8.2
– University (1981-86)	45	91.8
Trade Vocational Schools (1983/84 only)	0	0.0

Claims Adjusters

4192

Job Environment

Adjusters, compensation agents and repair clerks are representative of this classification. A claims adjuster investigates and adjusts claims for loss or damages filed under an insurance policy, determines the company's liability and recommends legal action. Although adjusters may issue cheques to be drawn against company funds, most submit their findings to claim examiners who review the submitted reports, check precedents or similar cases and then authorize payment. The investigative aspect of the job sometimes involves evening and weekend work in order to meet people outside of regular business hours.

Educational Background and Skills

A high-school diploma is the usual minimum educational requirement although some employers may also require applicants with experience in insurance work. Graduates from a program of study in general insurance at the college level may be preferred, and a university education is an advantage. Adjusters are given on-the-job training, and home-study courses, usually two years in duration, are available through the Insurance Institute of Canada. An independent adjuster must pass a provincial examination to receive a certificate or license. Good ability in mathematics, in communicating effectively and a good memory are desirable characteristics.

Nature of Supply

Given the industry-specific training provided by the Insurance Institute of Canada and the employer, potential applicants originate for the most part from the formal education system and the household sector (re-entrants). Career-oriented candidates have an advantage if they have a college or university degree in such fields as business administration. Individuals usually enter the occupation as clerical workers in the claims department of insurance companies or in independent adjusting establishments. With experience, a good knowledge of the industry, additional training and the will to study, an adjuster can move up to claims examiner, supervisor or claims manager.

As with the labour force as a whole, the age category 25 to 54 represents 62% of this group. The proportion of women in this occupation has increased from 54% in 1971 to 69% in 1981. The majority of adjusters (51%) work in the province of Ontario.

Market Conditions and Job Prospects

The employment outlook for this occupational group calls for about average growth over the forecast period. This differs from the 1970s when employment grew faster than the average of all occupations. Over the next eight years, approximately 900 new job openings will become available. Since an average proportion of claims adjusters are in the 54-plus age group, a moderate number of job openings will be created through retirements.

Labour market conditions for this occupational group are quite favourable: during the 1981 to 1986 period, claims adjusters had a below-average unemployment rate despite declines in employment in 1982.

These occupations tend to remain unaffected by changing business conditions. Although most jobs are full-time, the incidence of part-time work had doubled to 14% in 1981 compared to 1971.

Earnings[1]

Wages in this occupational group are influenced by the nature of work performed and by experience. In 1986, a new claims clerk received a paid annual salary of $15,532; telephone adjusters received $18,948; senior adjusters received $22,385; and supervisors received $29,628. A claims examiner's annual salary was $21,244; a senior claims examiner received $27,296 a year; a supervisor received $34,930; and a material damage appraiser earned $27,868 a year.

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[1] These salaries are based on a 1986 salary report on claims occupations in the insurance industry conducted by the Metropolitan Life Insurance Company.

Travel Clerks, Ticket, Station and Freight Agents 4193

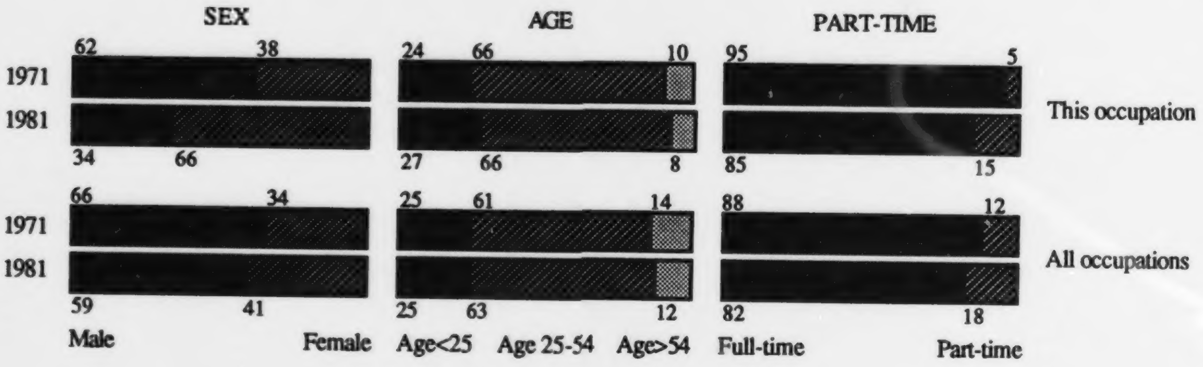
Employment Trends and Projections

	Employment			Average Annual Growth Rate (%)		
	1981	1986	1995	1971-81	1981-86	1987-95
This Occupation	24,700	23,100	24,200	8.0	-1.3	0.5
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation		All Occupations
	1987-95	% of 1987 Jobs	% of 1987 Jobs
Net New Job Openings	1,000	4.2	11.1
Replacement Openings	7,400	31.8	49.2
Total Job Openings	8,400	36.1	60.3

CENSUS – 1971 and 1981 (%)



1981 CENSUS – Main Industries of Employment (%)

Trans+Stor+Comm+Util (92)
- Misc Transport (48)
- Air Transport (33)
- Rail Transport (8)

Services (3)
- Misc Services (2)

Public Administration (2)
- Provincial Admin (1)

Geographic Distribution of Employment – 1981 (%)

Newfoundland	1.3	Ontario	39.4
Prince Edward Island	0.4	Manitoba	4.4
Nova Scotia	2.2	Saskatchewan	2.3
New Brunswick	1.4	Alberta	10.1
Quebec	19.9	British Columbia	17.9

Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
- College (1981-86)	283	67.5
- University (1981-86)	73	17.4
Trade Vocational Schools (1983/84 only)	63	15.0

Travel Clerks, Ticket, Station and Freight Agents

4193

Job Environment

Travel agents work in retail travel agencies, transportation and tourism firms, hotel chains and travel sections in department stores, providing travel information, planning itineraries and arranging accommodation for travellers. They make reservations and sell tickets to passengers for air, motor, rail or water transportation. They also check baggage, calculate freight and express-package charges, and handle telephone requests from customers. Some overtime work during evenings, weekends, and during poor weather conditions may be required, and during peak travel periods, they work under tremendous pressure. Ticket agents usually work on rotating shifts with days off.

Educational Background and Skills

The minimum qualification necessary to enter into this occupation is a high-school diploma. However, applicants have a better chance of employment if they have taken a travel and tourism program from schools and colleges accredited by the Canadian Institute of Travel Counsellors. Employers usually provide on-the-job training or pre-employment training programs to new recruits (especially ticket agents) for a period varying between two and six months.

Good knowledge of geography, fluency in a second language, strong interpersonal skills and an aptitude for selling are desirable assets.

Nature of Supply

Graduates from secondary schools, trade-level vocational schools and community colleges in the fields of study related to travel and tourism are the main source of supply for these occupations. People re-entering the labour force from the household sector also represent another significant source of supply. Inexperienced workers usually start with clerical jobs in an agency and, after training, may then acquire a permanent position. On average, persons enter this occupation between the ages of 20 and 28 and retire during their mid-50s, implying a career length of approximately 30 years. More and more women have chosen this profession over the last several years, with their representation increasing from 39% in 1971 to 66% in 1981. The average age of those employed in this occupation has declined since 1971 to slightly lower than the average for all occupations.

Market Conditions and Job Prospects

Based on the miscellaneous transport and air transport sectors, the employment outlook for this occupation calls for below-average growth into the mid-1990s. During the 1970s, employment grew at a faster-than-average pace which slowed considerably in the early 1980s primarily because of the effects of the 1981-1982 recession.

Nearly 8,400 job openings in this occupational group are expected within the next eight years because of an increased level of employment and the need to replace those leaving their occupation for different reasons. Employment patterns in this occupational group tend to be very sensitive to economic conditions.

Travel services could be revolutionized with the introduction of automation integrating numerous travel services. Car rental companies have already automated their reservations and inventory control operations, and computer and networking technology can also enable airline passengers to pay both lodging and car rental bills at the airport in one stop. The increased use of electronic equipment may adversely influence the future demand for some categories of ticket agents (i.e., airline passenger ticket agent).

Within a ten-year span, the proportion of part-time work in this occupational group has tripled to 15% in 1981.

Earnings[1]

The average annual salary for travel clerks was $19,812 in 1986. Average salaries varied among organizations and from a minimum rate of $17,784 to a maximum of $23,088.

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[1] Salaries are based on a 1986 survey conducted by the Wyatt Company of office personnel organizations reported earnings of travel clerks.

General Office Clerks

4197

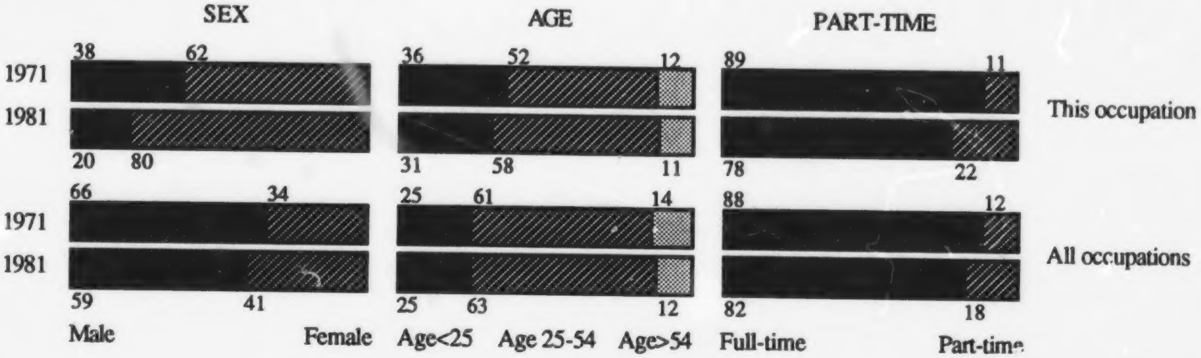
Employment Trends and Projections

	Employment 1981	 1986	 1995	Average Annual Growth Rate (%) 1971-81	 1981-86	 1987-95
This Occupation	136,400	144,900	16[illegible],600	0.9	1.2	1.1
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation 1987-95	 % of 1987 Jobs	All Occupations % of 1987 Jobs
Net New Job Openings	13,600	9.3	11.1
Replacement Openings	83,800	57.0	49.2
Total Job Openings	97,400	66.3	60.3

CENSUS – 1971 and 1981 (%)



1981 CENSUS – Main Industries of Employment (%)

Services (22)
- Hospitals (5)
- Business Services (5)
- Education (4)

Public Administration (21)
- Federal Admin (10)
- Provincial Admin (8)
- Municipal + Oth Gov't (3)

Trade (18)
- Retail Trade (10)
- Wholesale Trade (8)

Geographic Distribution of Employment – 1981 (%)

Newfoundland	1.7	Ontario	37.0
Prince Edward Island	0.5	Manitoba	4.7
Nova Scotia	3.1	Saskatchewan	2.8
New Brunswick	2.6	Alberta	9.0
Quebec	26.3	British Columbia	12.2

Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
– College (1981-86)	397	30.7
– University (1981-86)	373	28.8
Trade Vocational Schools (1983/84 only)	523	40.4

General Office Clerks

4197

Job Environment

Administrative clerk, forms control clerk and hospital clerk are typical occupations in this group. Office clerks perform clerical duties that range from running errands, delivering messages, receiving callers, handling mail, answering the telephone and filing correspondence, to acting as special assistants in particular departments. In smaller offices, the nature of the work is varied, while in larger offices it tends to be more specialized and repetitive. Most of the work is done at a desk or counter.

Educational Background and Skills

The basic requirement for this occupation varies among employers. Some will accept applicants with a couple of years of secondary school, while others prefer candidates with a high-school diploma and courses in business and commerce or secretarial sciences. Skills in typing, basic mathematics and writing; experience in business machine operation; and personal qualities such as punctuality, dependability and adaptability to change are good qualifications for this occupation.

Nature of Supply

The main source of new supply to this field are graduates from secondary and trade/vocational schools, community colleges, private institutions and universities. Major areas of study leading to this occupation are typing, bookkeeping, business arithmetic and stenography. Re-entrants from the household sector represent another substantial source of new supply. By providing the opportunities to acquire experience and additional skills, this occupation offers advancement to more specialized positions, as accounting clerk or information clerk.

Individuals willing to pursue further training and education, such as in business and commerce, will improve their chances of moving up to supervisory and managerial positions.

During the 1970s, this occupation attracted more and more women, so that by 1981 the female proportion of the group had increased from 62% to 80%. The average age in this occupation is 34, with one third of the group in the 15 to 24 year old category.

Market Conditions and Job Prospects

The employment outlook for this occupation calls for average growth over the next eight years, based on employment patterns in the services, public administration and trade sectors. This forecast differs from trends during the 1970s and early 1980s, when employment grew at a slower-than-average rate. In the projection period, approximately 97,000 jobs will come open, of which only a moderate number will be new positions. Five of six openings will fulfill replacement demand.

Current adverse labour market conditions are causing higher unemployment rates among general office clerks than in the labour market at large.

While the introduction of new office technologies (main frame computers, office purchasing systems and microprocessors) has increased overall office efficiency and individual productivity, it has altered the nature of some clerical positions and may have a moderating influence on employment growth.

Employment in this occupational category tends to be stable throughout the year. Part-time work increased to 1981, when two jobs in nine were part-time.

Earnings[1]

Wages in this occupation vary according to province and the nature of work performed. In 1986, an office clerk's estimated average annual salary ranged from $14,544 to $26,000 across Canada. The following table illustrates the average monthly pay of general office clerks by level and by province.

	Clerk I[2]	Clerk II[3]	Clerk III[4]	Clerk IV[5]	Clerk V[6]
Canada	$1.212	$1.368	$1.620	$1.866	$2.167
British Columbia	1.327	1.486	1.770	2.007	2.276
Alberta	1.216	1.389	1.657	1.898	2.255
Saskatchewan	1.251	1.360	1.646	1.913	2.430
Manitoba	1.101	1.210	1.501	1.749	1.906
Ontario	1.193	1.355	1.602	1.845	2.245
Quebec	1.208	1.356	1.615	1.772	2.109
Atlantic Provinces	1.119	1.320	1.417	1.675	1.717

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[1] Based on a 1986 salary survey conducted by Stevenson, Kellogg, Ernst and Whinney at various levels of administrative, finance and data-processing clerks.

[2] Entrance level.

[3] Junior working level.

[4] Intermediate level.

[5] Senior level with supervisory responsibilities.

[6] Has specialization in specific clerical activities and supervisory responsibilities.

Supervisors: Sales Occupations, Commodities

5130

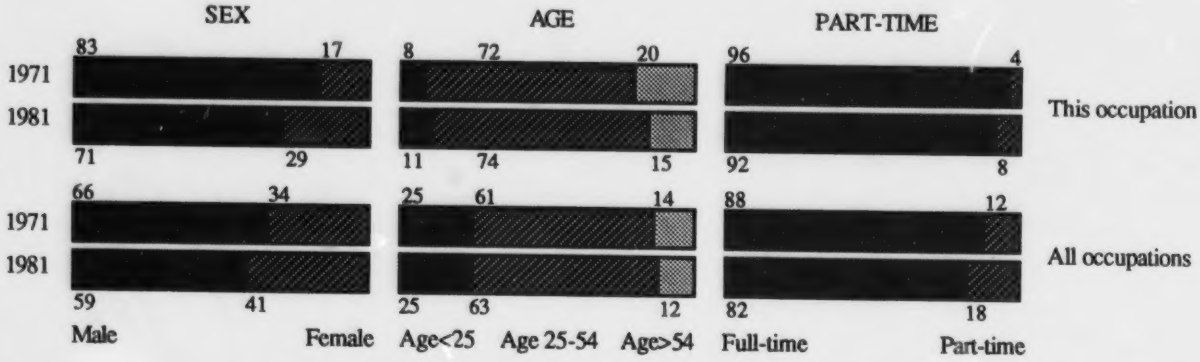
Employment Trends and Projections

	Employment			Average Annual Growth Rate (%)		
	1981	1986	1995	1971-81	1981-86	1987-95
This Occupation	123,300	134,800	149,100	0.9	1.8	1.0
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation		All Occupations
	1987-95	% of 1987 Jobs	% of 1987 Jobs
Net New Job Openings	11,900	8.7	11.1
Replacement Openings	83,400	60.8	49.2
Total Job Openings	95,300	69.5	60.3

CENSUS – 1971 and 1981 (%)



1981 CENSUS – Main Industries of Employment (%)

Trade (88)
- Retail Trade (73)
- Wholesale Trade (15)

Manufacturing (6)
- Food+Beverages (1)

Services (4)

Geographic Distribution of Employment – 1981 (%)

Newfoundland	1.7	Ontario	39.5
Prince Edward Island	0.4	Manitoba	4.5
Nova Scotia	3.5	Saskatchewan	4.4
New Brunswick	2.6	Alberta	10.0
Quebec	20.2	British Columbia	13.1

Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
- College (1981-86)	138	36.7
- University (1981-86)	151	40.2
Trade Vocational Schools (1983/84 only)	87	23.1

Supervisors: Sales Occupations, Commodities

5130

Job Environment

This group encompasses antique dealers, cattle dealers, lumber dealers, sales supervisors, wholesalers, importers, store proprietors and others who conduct wholesale or retail businesses. Their work includes buying and warehousing merchandise, importing and exporting goods, budget planning, bookkeeping and supervising workers. For the owner-operator or partner, other duties may include inventory control, payroll and management of daily operations.

Educational Background and Skills

Although there remain many areas of sales in which salespersons can work their way up through the business, entry usually occurs only after several years of experience have been accumulated. The entrance qualifications vary according to the product or service being sold. However, entrants must increasingly possess a community college diploma or university degree in either business administration, marketing or merchandising.

Nature of Supply

Related occupations are the primary source of new supply to this field. In fact it appears that movements into this area from other occupations exceed movements out of the field. Other sources of supply include graduates, re-entrants and new employees from the household, and immigrants.

The proportion of women in this occupational group has risen from 17% in 1971 to 29% in 1981. Over the coming years, women are expected to form an even greater proportion.

Over the 1971 to 1981 period, the average age of individuals in this classification fell from 43 to 40 years of age. The majority of individuals enter the field between the ages of 30 and 34 and exit between the ages of 60 and 64, suggesting an average career span of approximately 30 years.

Market Conditions and Job Prospects

Average employment growth is expected over the coming eight years, based on the outlook for the trade sector. This differs from the situation during the 1970s, when employment grew at a somewhat slower-than-average pace. Over the forecast period, 12,000 new job openings for sales supervisors are anticipated. Moderate interest rate levels and growing disposable incomes are expected to help spending levels increase in the economy which, in turn, will provide a favourable employment climate for occupations associated with merchandise sales.

Current labour market conditions are favourable for this occupational group. Rates of unemployment for sales and commodities supervisors in 1986 were lower than the average for all occupations.

The nature of the work is somewhat cyclical in nature, although stable throughout the year. The incidence of part-time work doubled over the 10-year period ending in 1981, but it is still well below the national average.

Earnings

Supervisors of commodities salespersons who were remunerated on a salary basis earned a median average annual base salary of $35,210 in 1986. These wages ranged from $23,000 to $49,173. The median average salary for employees paid on a salary-plus-incentive basis was $42,289, with wages ranging from $33,247 to $61,342 per year.[1]

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[1] Sobeco Group, *Sales Representatives Compensation in Canada Report*, 1986.

Technical Sales Occupations and Related Advisors 5131

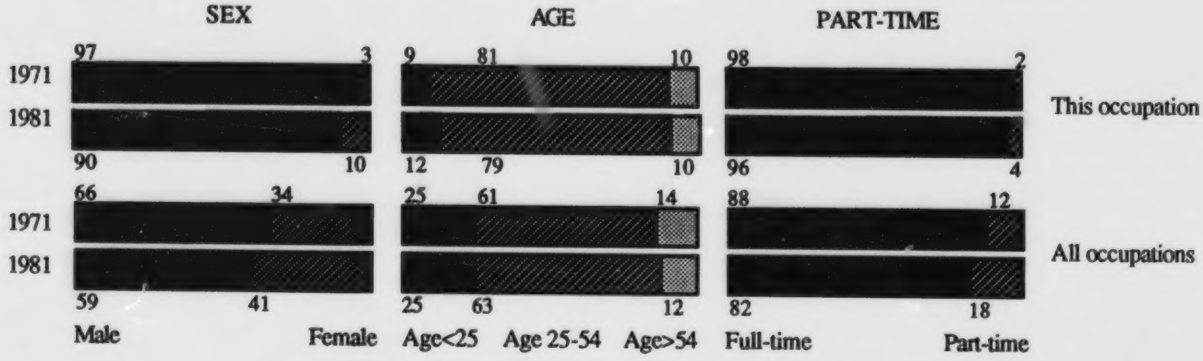
Employment Trends and Projections

	Employment			Average Annual Growth Rate (%)		
	1981	1986	1995	1971-81	1981-86	1987-95
This Occupation	11,400	11,800	12,800	6.9	0.7	1.2
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation		All Occupations
	1987-95	% of 1987 Jobs	% of 1987 Jobs
Net New Job Openings	1,100	9.8	11.1
Replacement Openings	3,800	32.2	49.2
Total Job Openings	4,900	42.0	60.3

CENSUS – 1971 and 1981 (%)



1981 CENSUS – Main Industries of Employment (%)

Trade (41)
- Wholesale Trade (41)

Manufacturing (33)
- Machinery (9)
- Electrical Products (6)
- Chemicals+Chem Prod (5)

Services (14)
- Business Services (11)
- Misc Services (1)

Geographic Distribution of Employment – 1981 (%)

Newfoundland	0.7	Ontario	47.1
Prince Edward Island	0.1	Manitoba	3.1
Nova Scotia	1.7	Saskatchewan	2.2
New Brunswick	1.3	Alberta	12.9
Quebec	22.7	British Columbia	8.5

Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
– College (1981-86)	61	30.7
– University (1981-86)	127	63.8
Trade Vocational Schools (1983/84 only)	11	5.5

Technical Sales Occupations and Related Advisors

5131

Job Environment

Data-processing and electronic equipment sales representatives, technical and implement salespersons, and sales engineers belong to this category. This occupational group is considered among the elite of the sales occupations because it sells scientific and technical products and services varying in nature from chemical, mechanical, electrical and electronic, to light, heat and power. Technical salespersons are also involved in redesigning the equipment they are selling, according to customers' specifications.

Educational Background and Skills

Employment in this occupation usually requires the completion of a community college or institute of technology program in a field of study related to the product or service being sold. A university undergraduate degree in computer science, mechanical engineering or electrical engineering is an asset for individuals looking for a sales job in the electronic data-processing industry. As well, the completion of training programs provided by the employer, lasting up to six months, may also be required.

Technical salespeople must be well versed in areas pertaining to the products they are selling and the markets they are serving. Good salesmanship on its own is insufficient for a successful career in an occupation that requires the salespeople to understand the engineering behind their products, as well as the business requirements of their customers.

Nature of Supply

One of the main sources of new supply into this occupation is the formal post-secondary education system. Labour force re-entrants from the household sector, as well as immigration and the military, are minor sources of new supply. Preliminary data indicate there will be more people moving into this occupation from related occupations, than leaving this occupation for others, suggesting that these occupations represent the upper end of the career ladder for many individuals.

This occupation is dominated by men, although the number of women has been increasing.

The average age (37) of persons within the occupation and the age structure have remained fairly stable since 1971. People enter this occupation normally between the ages of 25 and 29, and leave usually between the ages of 55 and 59, implying an average career span of approximately 30 years.

Market Conditions and Job Prospects

During the 1970s, employment for technical sales and related advisors increased at twice the rate of all occupations. However, this trend was reversed during the first half of the 1980s by the 1981-1982 economic recession. Based on the outlook for wholesale trade and manufacturing, current projections indicate that employment growth will be modest for technical salespersons in the near future. In the next eight years, approximately 4,900 total jobs will become available; nearly 3,800 of these will result from openings due to deaths, retirements, or returns to households or to the educational system.

Although these occupations are concentrated in the trade and manufacturing sectors, they are associated with an extremely wide range of products and industries. Having employment dispersed through many industries normally tends to moderate fluctuations in employment, although these occupations were subject to the declines associated with the 1981-1982 recession.

Employment in these occupations has been slightly affected by technological changes: opportunities are better for sellers of the chemical, mechanical, electrical and electronic products of the technological revolution. The growing interdependence between product/service development, marketing and sales is putting a premium on employment opportunities in this area.

Work in these occupations is virtually all full-time, and fairly stable throughout the year.

Earnings

In 1986, junior technical sales representatives earned an average annual salary of $29,137, and senior salespersons received $39,223 with remuneration derived on a salary-plus-commission basis. The respective salary ranges for these groups were $26,584 to $34,889 and $37,112 to $43,601.[1]

Results from the National Graduate Survey show that 1982 university graduates working in these occupations two years after graduation earned an average of $23,306 in 1984. Community college graduates averaged $20,712.

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[1] Sobeco Group. *Salary Survey of Sales Representatives in Canada*, 1986.

Commercial Travellers 5133

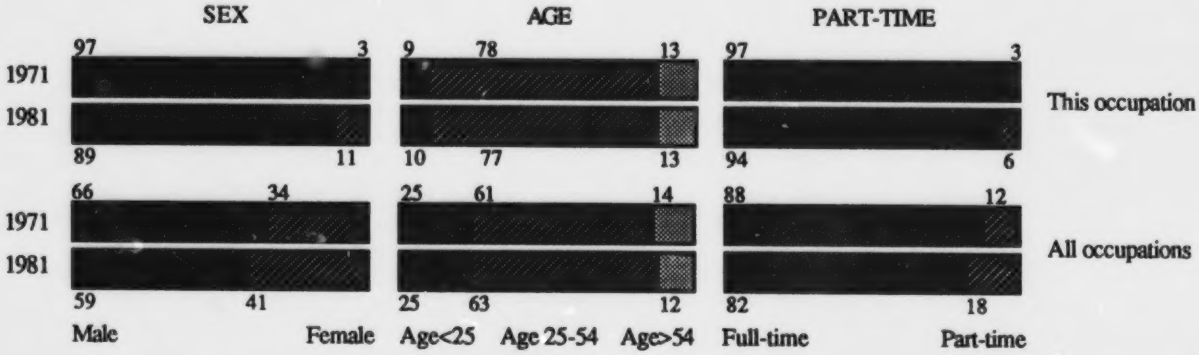
Employment Trends and Projections

	Employment 1981	Employment 1986	Employment 1995	Average Annual Growth Rate (%) 1971-81	Average Annual Growth Rate (%) 1981-86	Average Annual Growth Rate (%) 1987-95
This Occupation	100,900	105,900	113,200	6.8	1.0	1.1
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation 1987-95	This Occupation % of 1987 Jobs	All Occupations % of 1987 Jobs
Net New Job Openings	9,200	8.9	11.1
Replacement Openings	36,400	35.0	49.2
Total Job Openings	45,600	43.9	60.3

CENSUS – 1971 and 1981 (%)



1981 CENSUS – Main Industries of Employment (%)

Trade (47)	Manufacturing (41)	Services (5)
- Wholesale Trade (47)	- Food + Beverages (8)	- Business Services (2)
	- Chemicals + Chem Prod (5)	- Misc Services (1)
	- Printing + Publishing (4)	

Geographic Distribution of Employment – 1981 (%)

Newfoundland	0.9	Ontario	39.0
Prince Edward Island	0.2	Manitoba	4.1
Nova Scotia	2.7	Saskatchewan	2.8
New Brunswick	1.9	Alberta	10.8
Quebec	27.6	British Columbia	9.9

Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
- College (1981-86)	462	37.1
- University (1981-86)	673	54.0
Trade Vocational Schools (1983/84 only)	111	8.9

Commercial Travellers

5133

Job Environment

Examples of commercial travellers vary from commercial agents, drug representatives and footwear salespersons to fuel salespersons and furniture salespersons. These occupations are concerned with selling commodities on a wholesale basis in an allotted geographical area to wholesale, retail, industrial, professional or other establishments. The salesperson's job is to service existing clients and to secure further customers. Commercial travellers also quote prices, arrange deliveries, resolve customer complaints and keep abreast of the latest product innovations. They must travel in their job and often work evenings and weekends.

Educational Background and Skills

While the minimum level of schooling necessary is secondary school graduation, a community college or university diploma related to the commodity being sold, as well as courses in business and economics are considered to be assets and may be required for some positions. Employers normally also require completion of on-the-job training programs lasting up to six months.

Nature of Supply

Various sources of new supply to this occupation include graduates from the formal post-secondary education system, new employees and re-entrants from the household sector and, to a lesser extent, immigrants.

This occupation continues to be dominated by men, although the number of women entering this field has been increasing. The average age (38) of commercial travellers and the age structure for this group have remained stable since 1971.

A career as a commercial traveller lasts, on average, between 30 and 35 years, with entrance normally occurring between the ages of 25 and 29 and retirements occurring between the ages of 60 and 64.

Market Conditions and Job Prospects

Strong employment growth characterized this group during the 1970s. However, as a result of the 1981-1982 economic recession, a large employment loss occurred throughout the first half of the 1980s. Current projections indicate modest employment growth of 8.9% in the forecast period, based on the outlook for the wholesale trade and manufacturing sector. Given the size of the occupational area, this will mean 9,200 new job openings in the next eight years. Nearly 36,000 vacancies will result from personnel leaving the occupation due to death, retirement or a return to the household or the educational system. The high rate of job turnover will also provide employment opportunities.

Labour market conditions for commercial travellers were favourable in 1986, as indicated by the lower-than-average unemployment rate. The occupational group has fared better than most occupations in the labour market throughout the 1980s to date.

The incidence of part-time work increased modestly over the 10-year period ending in 1981, but still remains a minor factor. This type of work tends not to be affected by seasonal forces during the course of a year.

Earnings[1]

Listed below are the average annual salaries, by region, for various commercial travellers.

Position	Canada	B.C.	Alberta	Saskatchewan and Manitoba	Ontario	Quebec and Atlantic Region
Wholesale Sales	$31,900	$32,400	$30,700	$28,300	$26,900	$30,000
Commercial Salesperson	30,800	30,800	30,000	30,400	33,900	31,900
Industrial Sales Representative	36,300	37,500	35,100	34,400	30,800	31,100

The National Graduate Survey reported an average annual salary of $24,392 for 1982 university graduates working in these occupations in 1984, and $20,815 for 1982 community college graduates.

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[1] Stevenson, Kellogg, Ernst & Whinney, *Sales and Marketing Report*, 1986.

Sales Clerks and Salespersons, Commodities 5135

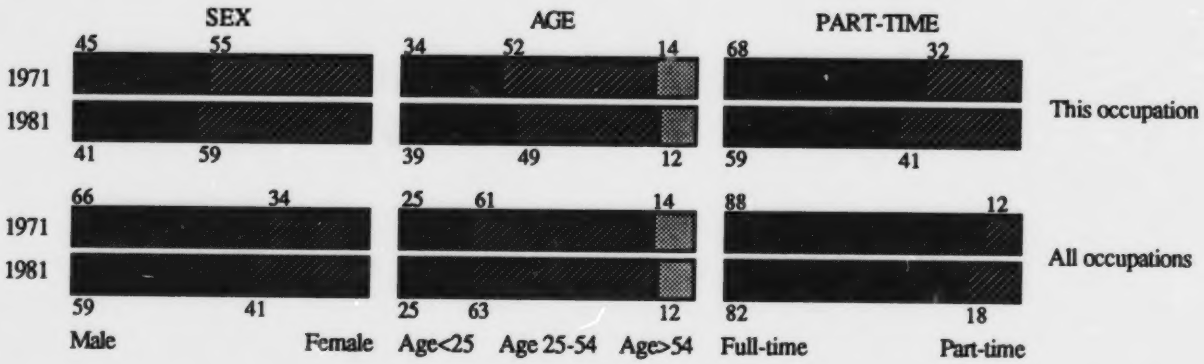
Employment Trends and Projections

	Employment 1981	Employment 1986	Employment 1995	Average Annual Growth Rate (%) 1971-81	Average Annual Growth Rate (%) 1981-86	Average Annual Growth Rate (%) 1987-95
This Occupation	127,300	139,300	154,600	4.2	1.8	1.0
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation 1987-95	This Occupation % of 1987 Jobs	All Occupations % of 1987 Jobs
Net New Job Openings	12,300	8.6	11.1
Replacement Openings	86,600	60.8	49.2
Total Job Openings	98,900	69.5	60.3

CENSUS – 1971 and 1981 (%)



1981 CENSUS – Main Industries of Employment (%)

Trade (90) - Retail Trade (79) - Wholesale Trade (11)	Manufacturing (4) - Food + Beverages (2)	Services (4) - Accommodation + Food (1)

Geographic Distribution of Employment – 1981 (%)

Newfoundland	1.8	Ontario	36.6
Prince Edward Island	0.4	Manitoba	4.3
Nova Scotia	3.3	Saskatchewan	3.7
New Brunswick	2.4	Alberta	10.3
Quebec	24.4	British Columbia	12.6

Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
- College (1981-86)	1,066	36.7
- University (1981-86)	815	28.0
Trade Vocational Schools (1983/84 only)	1,026	35.3

Sales Clerks and Salespersons, Commodities

5135

Job Environment

This occupational group includes bakery sales clerks, furniture salespersons and automobile salespersons. In selling commodities, sales clerks provide direct service to customers and must be knowledgeable about the products they sell. Duties include keeping records of items sold, writing out sales receipts, tallying sales and operating cash registers. Many of the traditional functions, however, are now done electronically by multi-function cash registers. In many cases, this has freed sales clerks to perform a number of non-traditional tasks, such as inventory searches and completion of restocking orders. In keeping with customer shopping patterns, sales clerks usually work some evenings and Saturdays.

Educational Background and Skills

Entrance into this occupational group usually requires secondary school graduation. Post-secondary courses in business administration, economics or statistics are recommended, however, for advancement to managerial positions. Previous sales experience is a definite asset.

Nature of Supply

The primary sources of new supply to this predominantly female occupation are the secondary school system, the household sector, immigration, and to a lesser extent the post-secondary school system.

While the average age (34) of the participants in this occupational group has remained relatively stable, the age structure has changed, the proportion of those under 25 having significantly increased.

Market Conditions and Job Prospects

This group enjoyed substantial employment increases during the 1970s. Current projections forecast employment growth to decelerate somewhat. This means about 51,200 new jobs will become available in the next eight years. About 87,000 vacancies will result from personnel leaving the occupation due to death, retirement or to return to the household or the educational system. This large number of expected replacement openings is explained by the high rate of turnover among sales clerks. Many of these opportunities will be part-time employment, as 41% of salespersons worked on a part-time basis in 1981. The work is seasonal, employment peaking during the Christmas season and troughing immediately after.

General economic conditions can affect employment of commercial salespersons in the retail trade sector. Employment functions may have been influenced by the introduction of electronic cash registers, but the number of salespersons required has not decreased, as sales clerks have been asked to perform additional tasks at the point of sale in keeping with the enhanced capabilities of the new machinery. The labour market conditions prevailing in this occupation have traditionally been slightly better than the average recorded for all occupations.

Earnings[1]

Junior retail sales representatives earned an average of $26,238 in salary, bonus and commission, while senior retail sales representatives averaged $32,673 across Canada in 1986. Total remuneration ranged from $15,458 to $34,270 for junior sales representatives and from $24,795 to $43,520 for senior sales representatives.

The following table shows the average total remuneration (a combination of incomes that includes salary plus bonus and commission) of retail sales representatives by region.

Region	Junior Sales Rep.	Senior Sales Rep.
Atlantic	—	$29,992
Montreal	$24,704	30,009
Other (Quebec)	26,848	37,412
Other (Ontario)	26,594	32,423
Toronto	24,879	33,159
Manitoba	21,355	33,608
Saskatchewan	23,042	28,347
Alberta	23,440	29,394
British Columbia	28,308	32,192

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[1] Sobeco Group, *Sales Representatives Compensation in Canada Report*, 1986.

Supervisors: Sales Occupations, Services

5170

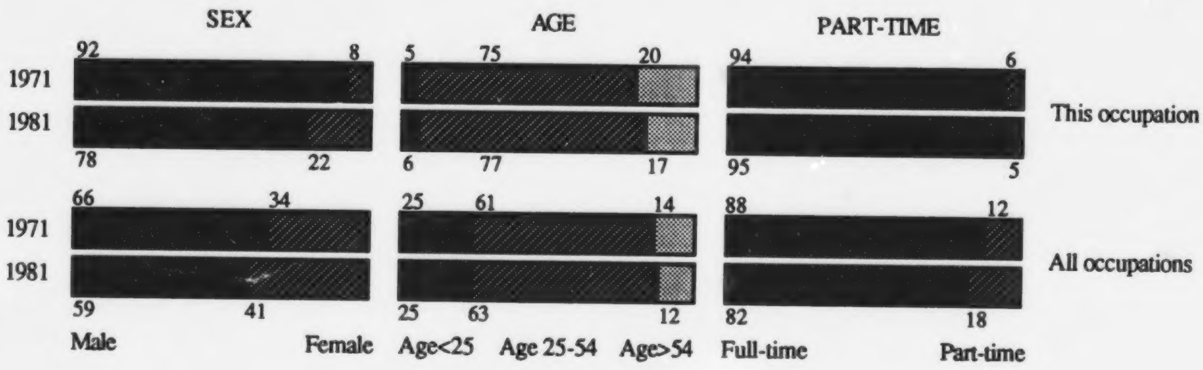
Employment Trends and Projections

	Employment 1981	Employment 1986	Employment 1995	Average Annual Growth Rate (%) 1971-81	Average Annual Growth Rate (%) 1981-86	Average Annual Growth Rate (%) 1987-95
This Occupation	17,100	18,900	21,600	-1.4	2.0	1.3
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation 1987-95	This Occupation % of 1987 Jobs	All Occupations % of 1987 Jobs
Net New Job Openings	2,100	11.0	11.1
Replacement Openings	12,600	64.7	49.2
Total Job Openings	14,700	75.7	60.3

CENSUS - 1971 and 1981 (%)



1981 CENSUS - Main Industries of Employment (%)

Fin + Ins + Real Estate (84)
- Fin + Ins + Real Estate (84)

Services (9)
- Business Services (8)

Trans + Stor + Comm + Util (2)

Geographic Distribution of Employment - 1981 (%)

Newfoundland	1.0	Ontario	44.8
Prince Edward Island	0.1	Manitoba	4.6
Nova Scotia	2.2	Saskatchewan	2.9
New Brunswick	1.8	Alberta	12.3
Quebec	16.8	British Columbia	13.1

For further information, contact:

Human Resources
Metropolitan Insurance Co.
Suite 1700
1 University Avenue
Toronto, Ontario M5J 2P2
(416) 862-8760

Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
- College (1981-86)	25	26.9
- University (1981-86)	68	73.1
Trade Vocational Schools (1983/84 only)	0	0.0

Supervisors: Sales Occupations, Services

5170

Job Environment

Bond brokers, financiers, investment brokers and securities traders fall within this category. This group sells service such as insurance, securities, real estate and advertising. The largest portion of an independent broker's time is spent analysing clients' needs, and then selecting policies/portfolios to meet these needs. The rest of their time is spent in soliciting new business. Supervisors of sales and service employees are also responsible for co-ordinating office activities and for the supervision of employees. Some brokers, especially general insurance brokers, often work evenings in order to serve clients.

Educational Background and Skills

Since these are supervisory positions, entry usually occurs only after several years of related experience. Entrance qualifications vary according to the service being sold, but it is becoming increasingly necessary for individuals wishing to enter this occupation to possess a community college diploma or a university degree in business administration, marketing or economics. There are still many selling areas, however, in which people can work their way up through the business.

Nature of Supply

The major sources of new supply into this occupation are other related occupations and the formal post-secondary education system. Minor sources of new supply include re-entrants from the household sector and immigrants.

This occupation is a predominately male one although the number of women entering has been increasing steadily. The majority of the individuals within this occupation group are located in the provinces of Ontario, Quebec and British Columbia.

The age structure and the average age of 42 years have remained fairly stable since 1971. People enter this occupation normally between the ages of 25 and 29, and leave between the ages of 55 and 59, which suggests an average career span of approximately 30 years.

Market Conditions and Job Prospects

During the 1970s, there was a drop in employment of sales and services supervisors, while a small employment growth rate was recorded in the 1980s. Current projections indicate that there will be an average employment growth rate in the forecast period, with 14,700 job openings occuring within the next eight years. Since a sizeable proportion of sales and services supervisors are in the 54-plus age group, a number of these openings will be the result of retirements and deaths.

Since 84% of sales and services supervisors are employed in the finance, insurance and real estate industry, they tend not to be affected too much by changing economic conditions. The expansion of services offered by banks and financial institutions will improve employment opportunities for this group.

These occupations fared well in the labour market throughout the 1980s and continue to do so, as indicated by the unemployment insurance claimant to employment stock ratio, which is well below the average for all occupations. The majority of the labour force in this occupation works full-time, although the nature of employment is somewhat cyclical.

Insurance Sales Occupations

5171

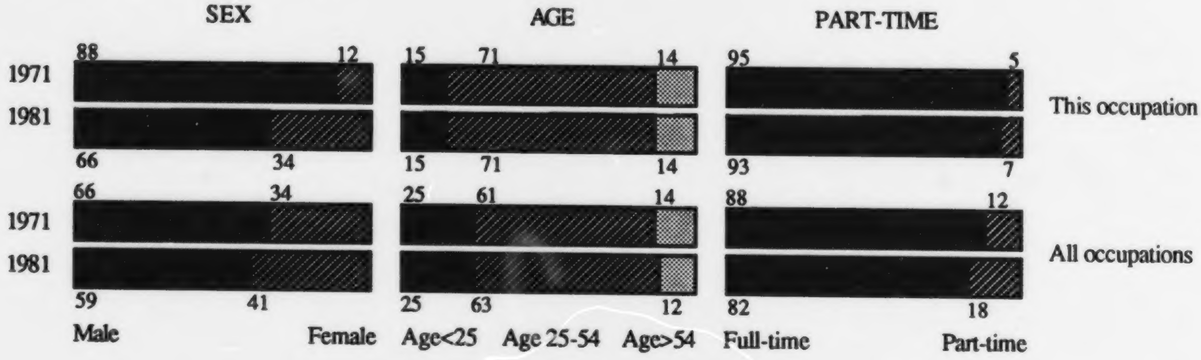
Employment Trends and Projections

	Employment			Average Annual Growth Rate (%)		
	1981	1986	1995	1971-81	1981-86	1987-95
This Occupation	44,500	49,000	55,900	4.6	2.0	1.3
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation		All Occupations
	1987-95	% of 1987 Jobs	% of 1987 Jobs
Net New Job Openings	5,400	10.7	11.1
Replacement Openings	21,500	42.6	49.2
Total Job Openings	26,900	53.3	60.3

CENSUS – 1971 and 1981 (%)



1981 CENSUS – Main Industries of Employment (%)

Fin+Ins+Real Estate (100)
- Fin+Ins+Real Estate (100)

Geographic Distribution of Employment – 1981 (%)

Newfoundland	0.8	Ontario	35.1
Prince Edward Island	0.3	Manitoba	3.9
Nova Scotia	3.4	Saskatchewan	3.2
New Brunswick	2.3	Alberta	8.7
Quebec	33.4	British Columbia	8.8

Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
– College (1981-86)	156	24.8
– University (1981-86)	395	62.8
Trade Vocational Schools (1983/84 only)	78	12.4

For further information, contact:

The Insurance Institute of Canada
Suite 600
481 University Avenue
Toronto, Ontario M5G 2E9
(416) 591-1572

Human Resources
Metropolitan Insurance Co.
Suite 1700
1 University Avenue
Toronto, Ontario M5J 2P2
(416) 862-8760

Insurance Sales Occupations

5171

Job Environment

Annuity representatives, claim inspectors, insurance appraisers and policy writers fall into this category. An insurance salesperson's main function is to sell a suitable insurance policy to clients. Other duties include explaining the policy particulars, calculating premiums, drafting contracts and approving insurance applicants. Insurance agents generally work in an office. Their hours of work are self-determined, and the nature of work often requires working evenings and weekends.

Educational Background and Skills

There is no set level of education required to become a insurance broker, but graduation from secondary school is a definite asset. Insurance brokers must know the principles and types of insurance they wish to sell and must also obtain a provincial licence to conduct business. Courses offered to the prospective broker may be completed through home study, a community college or through a company-sponsored course.

Nature of Supply

The secondary school system, the post-secondary education system, as well as re-entrants into the labour force provide the main sources of new supply into this occupation. Other sources include immigrants and entrants from other related occupations.

Although this occupation continues to be dominated by men, the number of women becoming insurance brokers has increased significantly. This trend is expected to continue. The majority of insurance brokers live in Ontario although the province of Quebec has the highest concentration per capita.

The average age of 38 years and the age structure of this occupation have stayed fairly stable since 1971. The average career for insurance brokers spans approximately 30 to 35 years with people starting their career between the ages of 25 and 34.

Market Conditions and Job Prospects

Future employment growth is expected to be about average. Approximately 26,900 total job openings are anticipated over the projection period, with most of these openings the result of replacement requirements.

All insurance salespersons work within the finance, insurance and real estate industry and, as an occupational group, is not overly sensitive to economic circumstances. Currently, this group is faring well in the labour market, with fairly low unemployment.

The introduction of office automation has realigned some of the work tasks performed by insurance agents. The preparation of insurance promotional material, the issuing and processing of premiums, the monitoring of birthdays, and even basic underwriting can now be performed electronically. The work is somewhat cyclical in nature. Only 7% of total employment is part-time.

Earnings

Reported annual earnings for salaried insurance carriers was $26,364 in 1986.[1] However, since most insurance agents are usually paid on a commission basis, earnings vary greatly and depend on type of insurance sold, company, location and the number of sales.

Life insurance salespeople are often paid a fixed salary ranging from $15,000 to $25,000 a year when starting out, with commission sales supplementing their income after some experience is gained. Estimated average yearly income is about $50,000 with top-notch salespersons earning $200,000.

Group life insurance agents may earn a base salary ranging from $20,000 to $35,000 a year, plus a bonus to start. More experienced salespersons can earn base salaries ranging from $35,000 to $40,000 a year plus commission. Bonuses can be as high as $60,000.

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[1] Statistics Canada: wages earned include overtime.

Real Estate Sales Occupations 5172

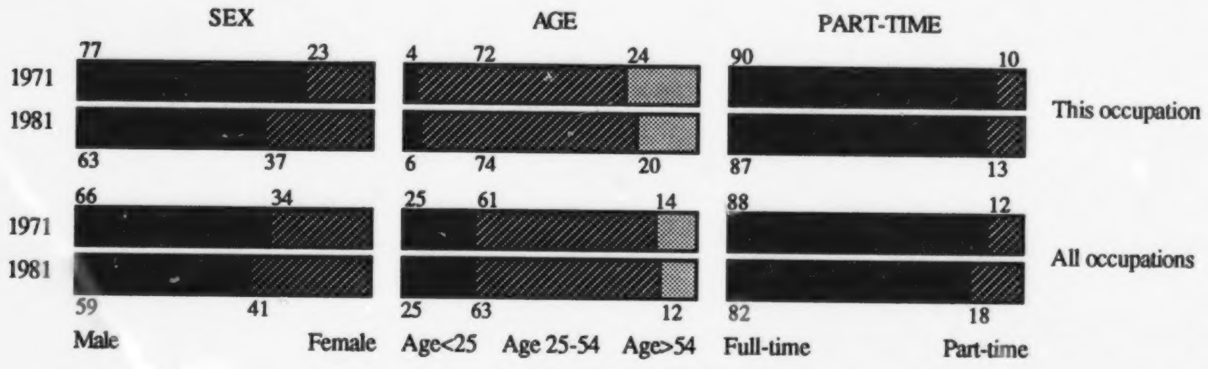
Employment Trends and Projections

	Employment			Average Annual Growth Rate (%)		
	1981	1986	1995	1971-81	1981-86	1987-95
This Occupation	55,500	61,100	82,000	10.0	2.0	2.8
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation		All Occupations
	1987-95	% of 1987 Jobs	% of 1987 Jobs
Net New Job Openings	16,000	24.2	11.1
Replacement Openings	35,000	53.0	49.2
Total Job Openings	51,000	77.3	60.3

CENSUS – 1971 and 1981 (%)



1981 CENSUS – Main Industries of Employment (%)

Fin + Ins + Real Estate (100)
- Fin + Ins + Real Estate (100)

Geographic Distribution of Employment – 1981 (%)

Newfoundland	0.7	Ontario	42.2
Prince Edward Island	0.2	Manitoba	3.2
Nova Scotia	2.0	Saskatchewan	2.9
New Brunswick	1.0	Alberta	15.9
Quebec	13.6	British Columbia	18.1

For further information, contact:

Canadian Real Estate Association
Suite 2100
320 Queen Street
Ottawa, Ontario K1R 5A3
(613) 234-3372

Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
– College (1981-86)	120	45.3
– University (1981-86)	145	54.7
Trade Vocational Schools (1983/84 only)	0	0.0

Real Estate Sales Occupations

5172

Job Environment

Land appraisers, real estate agents, and rental agents are typical members of this classification. Real estate salespersons are involved in the buying, selling, leasing and appraising of land and buildings. A real estate agent, for example, finds people who wish to sell or rent their property and then locates clients who wish to rent or buy. Since agents are also familiar with mortgage conditions, financing and legal documents concerning real estate transactions, many of them become brokers (owners or part-owners of a firm). Agents spend much of their time away from the office, usually located in a shopping plaza, and they must work evenings and weekends, when a large number of sales, especially residential, are accomplished. The introduction of computer technology and multiple listings has enabled agents to gain wider access to customers and to search through listings quickly to meet accurately the customer's needs and wants.

Educational Background and Skills

Normally secondary school graduation is required in the real estate sales field. Prospective agents must pass a provincial licensing examination upon completion of an approved course of study. They must also have a working knowledge of business law, economics, finance and real estate appraisal.

Nature of Supply

The primary sources of new supply into this occupation are re-entrants from the household sector and graduates from the secondary and post-secondary education systems. As well, preliminary data indicates that movement of people into this occupation exceeds movement out of the occupation, suggesting that for many, this category represents the higher end of their career ladder.

The number of women in this occupational group has been growing, although men still outnumber women. The average age has dropped marginally from 45 years of age in 1971 to 42 years in 1981. A typical career as a real estate agent lasts approximately 30 years, with entry normally occurring between the ages of 25 to 34.

Market Conditions and Job Prospects

During the 1970s employment in this category increased more quickly than the average of all occupations. Current projections for the finance and real estate industries indicate that employment in this occupation will grow at an average rate in the future. In the next eight years about 51,000 jobs will become available, of which nearly 35,000 will result from personnel leaving due to death, retirement, or return to the household or the educational system.

Employment opportunities for real estate salespersons are controlled by economic conditions affecting the housing market, such as the age structure of the population, and regional prosperity. If current interest rates remain stable, the employment outlook for the real estate sector should continue to be good.

Part-time work accounted for 13% of all employment in 1981, somewhat less than in the labour market at large; the nature of work is also cyclical.

Although real estate sales are cyclical, causing incomes to fluctuate, employment is less affected by slumps in housing sales than one might think.

Earnings

Earnings of real estate agents vary widely across Canada and depend strongly on market conditions. They are paid on a commission basis, usually around 6% of the selling cost, which is divided four ways among the selling broker, selling salesperson, purchasing broker and purchasing salesperson. Commissions are negotiable and tend to be lower on more expensive homes. In 1985, the estimated annual salary for real estate agents was $20,000 to $32,000, while accredited real estate appraisers earned an average annual salary of $32,000.

The National Graduate Survey indicated that the annual average earnings in 1984 for 1982 university graduates working in this occupation was $21,836; for community college graduates, equivalent earnings averaged $21,842.

Sales Agents and Traders, Securities

5173

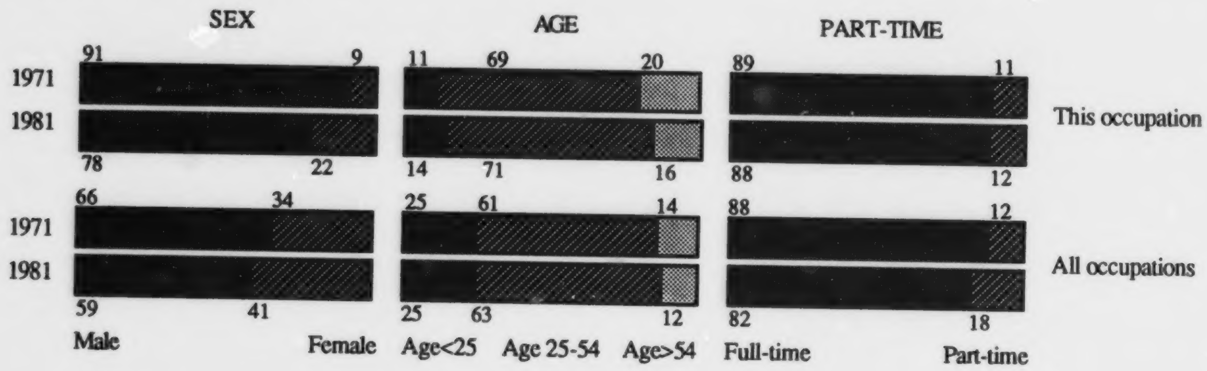
Employment Trends and Projections

	Employment			Average Annual Growth Rate (%)		
	1981	1986	1995	1971-81	1981-86	1987-95
This Occupation	11,400	12,600	14,400	2.9	2.0	1.3
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation		All Occupations
	1987-95	% of 1987 Jobs	% of 1987 Jobs
Net New Job Openings	1,400	10.8	11.1
Replacement Openings	5,300	40.5	49.2
Total Job Openings	6,700	51.4	60.3

CENSUS – 1971 and 1981 (%)



1981 CENSUS – Main Industries of Employment (%)

Fin+Ins+Rel Estate (97)
- Fin+Ins+Real Estate (97)

Services (3)
- Business Services (3)

Geographic Distribution of Employment – 1981 (%)

Newfoundland	0.7	Ontario	50.6
Prince Edward Island	0.2	Manitoba	2.7
Nova Scotia	2.4	Saskatchewan	2.0
New Brunswick	1.1	Alberta	9.6
Quebec	13.6	British Columbia	17.3

For further information, contact:

The Canadian Securities Institute
Suite 360
33 Yonge Street
Toronto, Ontario M5E 1G4
(416) 364-9130

Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
- College (1981-86)	53	26.8
- University (1981-86)	145	73.2
Trade Vocational Schools (1983/84 only)	0	0.0

Sales Agents and Traders, Securities

5173

Job Environment

Typical professionals in this occupational group are bond traders, mutual fund sales agents, investment dealers and trust representatives. Securities dealers buy and sell securities on behalf of customers, maintaining files on customer portfolios. They also furnish clients with information on market conditions and on corporations in which investment is contemplated. Their working environment is usually an office. In contrast, traders work in fast-paced, high-pressure situations where they must make split-second decisions on buying and selling investments.

Educational Background and Skills

Employment in this occupation usually requires secondary school graduation. A university undergraduate degree in business administration or economics is strongly recommended. Entrants to this field must complete the three- to six-month Canadian Securities Course and must be bondable.

Nature of Supply

The primary source of new supply to this occupation is the formal post-secondary education system. Other sources of supply include re-entrants from the household sector and immigrants.

The average age (39) as well as the age structure of this occupational group has stayed relatively stable since 1971. The average duration of a career as a securities dealer is approximately 30 years, with entry occurring between the ages of 25 and 29.

Most dealers work in Ontario and British Columbia. Most are men, but the number of women in this occupational area has increased significantly over the past several years.

Market Conditions and Job Prospects

Employment growth in securities sales remained stable throughout the first half of the 1980s. Current projections indicate employment will increase by 11% for a total of 1,400 new jobs in the next eight years. To replace existing personnel, 5,300 additional jobs will come open, as a higher-than-average proportion of securities dealers are in the 54-plus age group. The high job turnover among securities brokers will also create vacancies.

Since economic conditions affect the investment and trading climate, they can determine the employment opportunities available to securities dealers working in the finance, insurance and real estate sector. As Canadian banks pursue expansion into global markets and broaden their range of financial services, the demand for banking personnel may increase. Deregulation of the financial industry, as well, may lead to increased competition among banks and other financial institutions and improved opportunities for securities agents and traders. Seasonal forces do not affect employment in this field.

In 1986, securities dealers experienced favourable labour market conditions. Their unemployment rate was low throughout the 1980s.

Earnings

Persons entering the investment industry with a master's degree and some years of experience earn about $50,000 annually. A stock market analyst's income (including commission), in Toronto, is about $65,000 to $70,000, while money market traders' wages range from $100,000 to $200,000 annually. Salaries for senior bond traders, senior group underwriters and senior brokers may be as high as $300,000 annually.

Graduates entering this occupational area earn considerably less. The 1984 National Graduate Survey reported average earnings of $21,038 for 1982 university graduates working in these occupations two years after graduation, and $24,024 for 1982 community college graduates.

Advertising Sales Occupations

5174

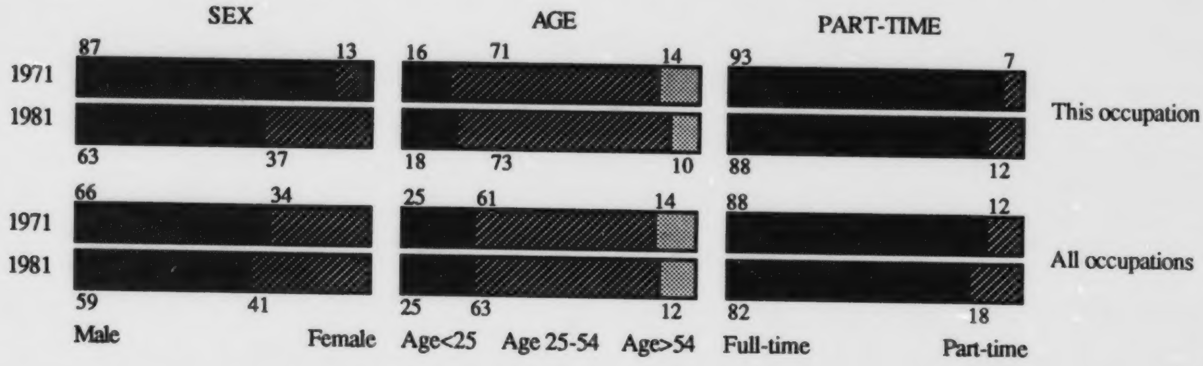
Employment Trends and Projections

	Employment 1981	1986	1995	Average Annual Growth Rate (%) 1971-81	1981-86	1987-95
This Occupation	8.200	9.700	10.700	6.8	3.4	1.0
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation 1987-95	% of 1987 Jobs	All Occupations % of 1987 Jobs
Net New Job Openings	800	8.5	11.1
Replacement Openings	2.900	29.5	49.2
Total Job Openings	3.700	38.0	60.3

CENSUS – 1971 and 1981 (%)



1981 CENSUS – Main Industries of Employment (%)

Manufacturing (43) - Printing+Publishing (40) - Misc Manufacturing (1)	Services (34) - Business Services (32) - Misc Services (1)	Trans+Stor+Comm+Util (15) - Radio+TV Broadcast (13)

Geographic Distribution of Employment – 1981 (%)

Newfoundland	1.4	Ontario	44.7
Prince Edward Island	0.5	Manitoba	3.5
Nova Scotia	3.5	Saskatchewan	3.2
New Brunswick	1.3	Alberta	10.8
Quebec	17.5	British Columbia	13.6

Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
- College (1981-86)	87	41.4
- University (1981-86)	123	58.6
Trade Vocational Schools (1983/84 only)	0	0.0

Advertising Sales Occupations

5174

Job Environment

Examples of occupations in this unit are advertising agent, sales representative, advertising broker and time salesperson. They are responsible for soliciting business for display or classified advertising in publications or outdoor advertising. Other aspects include selling art work to advertising agencies or industrial firms for use in advertising material and selling advertising time on radio and television programs.

Educational Background and Skills

The minimum level of education required for advertising salespersons is secondary school graduation. A diploma from a community college or university program with emphasis on business administration, marketing, economics or merchandising, however, is increasingly demanded by employers. Some previous experience is also desirable. Advertising salespersons must be well-versed in the operations of the media in which they are selling. Since meeting and discussing options with people are fundamental to their job, they must also be articulate and people-oriented.

Nature of Supply

The formal post-secondary education system is one of the main channels into this occupation. Other sources of supply include labour force re-entrants, immigrants and individuals from other occupations.

Men still outnumber women in this field, although the proportion of female advertising salespersons has tripled since 1971, and this trend is expected to continue. Advertising salespersons are primarily concentrated in the provinces of Quebec, Ontario and British Columbia.

The age structure of the advertising profession as well as its average age (36) have remained relatively stable since 1971. A typical career lasts approximately 30 to 35 years, with entrance occurring between the ages of 25 and 30.

Market Conditions and Job Prospects

This occupational group experienced slightly above-average employment growth during the first half of the 1980s. Current projections indicate employment will grow by 8.5% over the projection period, which is less than the overall occupational average. As a result, approximately 800 new jobs will become available in the next eight years. Another 2,900 openings will result from personnel leaving the occupation due to death, retirement or to return to the household or the educational system.

Employment opportunities for this occupational group may not be particularly vulnerable to prevailing economic conditions, since employment in printing and publishing, business services and radio and television broadcasting, where advertising salespersons are concentrated, tends to fluctuate only mildly. The employment outlook depends on continued growth in the advertising field.

Labour market conditions were favorable for advertising salespersons in 1986; their unemployment rate was much lower than that recorded for all occupations. This occupational group consistently fared better than most throughout the early 1980s.

In 1981, 12% of the labour force was employed on a part-time basis. Work in these occupations is not seasonal.

Earnings

In 1986, advertising sales and promotion managers average earnings were $39,400 and ranged from $33,100 to $45,800. The highest earnings were in British Columbia, where the average annual salary was $42,200.[1]

Top advertising and sales promotion executives earned an annual average salary of $49,709, with 80% falling in the $34,650 to $63,850 salary range.

The National Graduate Survey reported 1984 average annual earnings of $30,540 for 1982 university graduates who had worked in these occupations two years. Community college graduates averaged $14,709.

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[1] Stevenson, Kellogg, Ernst and Whinney, *Sales and Marketing Salary Survey*, 1986.

Business Services Sales Occupations 5177

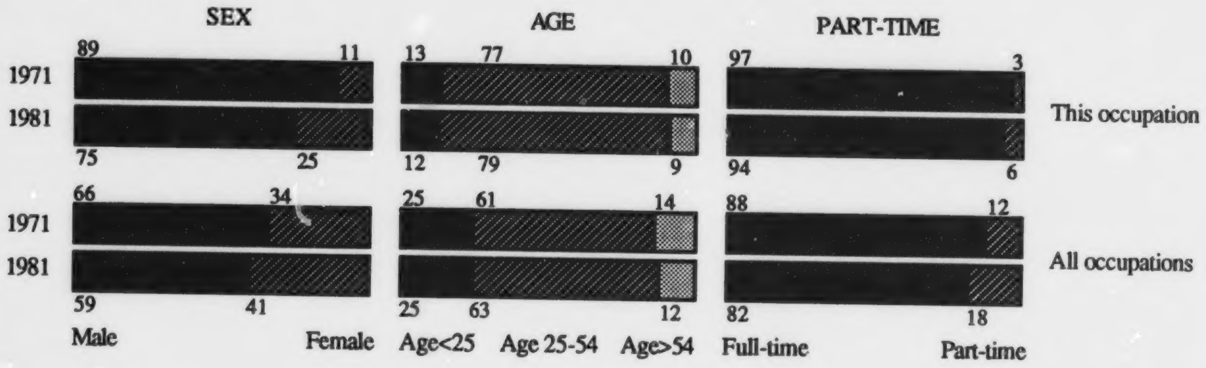
Employment Trends and Projections

	Employment 1981	Employment 1986	Employment 1995	Average Annual Growth Rate (%) 1971-81	Average Annual Growth Rate (%) 1981-86	Average Annual Growth Rate (%) 1987-95
This Occupation	5,000	5,200	5,600	7.5	0.5	0.9
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation 1987-95	This Occupation % of 1987 Jobs	All Occupations % of 1987 Jobs
Net New Job Openings	400	7.6	11.1
Replacement Openings	1,600	30.9	49.2
Total Job Openings	2,000	38.4	60.3

CENSUS – 1971 and 1981 (%)



1981 CENSUS – Main Industries of Employment (%)

Trans + Stor + Comm + Util (56)
- Misc Transport (21)
- Air Transport (13)
- Telephone + Telegraph (12)

Services (22)
- Business Services (14)
- Misc Services (4)
- Accommodation + Food (3)

Fin + Ins + Real Estate (9)
- Fin + Ins + Real Estate (9)

Geographic Distribution of Employment – 1981 (%)

Newfoundland	1.7	Ontario	50.7
Prince Edward Island		Manitoba	3.7
Nova Scotia	2.0	Saskatchewan	2.7
New Brunswick	2.4	Alberta	13.3
Quebec	8.6	British Columbia	14.1

Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
– College (1981-86)	71	32.0
– University (1981-86)	135	60.8
Trade Vocational Schools (1983/84 only)	16	7.2

Business Services Sales Occupations

5177

Job Environment

Collection-agency salespersons, freight representatives, hotel service sales representatives and security services sales representatives are examples of jobs in this occupational classification. Business services representatives sell services such as building maintenance, credit reporting, bookkeeping, security, printing and telecommunications that help to increase the efficiency of an enterprise. They must know their own services well and have a good technical grasp to be able to communicate the particular advantages of their services to prospective buyers, and to respond adequately to customers' criticisms or suggestions. Travelling is required in this job. A 40-hour work week is normal.

Educational Background and Skills

The minimum educational requirement for business service representatives is secondary school graduation. Courses in business administration or economics are recommended. By working their way up through a company, business service representatives gain an overall knowledge of the service they sell.

Nature of Supply

The post-secondary and secondary school systems are the main channels into this occupation. Labour force re-entrants and immigrants are smaller sources of supply. Over the projection period, the number of individuals leaving this occupation to move into an alternative one will marginally exceed the number moving into the occupation from related ones. This suggests that for many, this occupational area is at entry level in their careers.

The average age (37) as well as the age structure in this area has remained fairly stable since 1971. A typical career in this occupation lasts approximately 30 years, with entry normally occurring between the ages of 25 and 29.

Most business service representatives are in the provinces of Ontario, Alberta and British Columbia, and are men, although the number of women has been steadily increasing.

Market Conditions and Job Prospects

During the 1970s, employment in this occupational area grew faster than the average for all occupations. Current projections forecast employment growth of 7.6% and 400 new jobs over the next eight years. About 1,600 openings will result from personnel leaving due to death, retirement or to return to the household or the educational system.

Business services salespersons work throughout the industrial spectrum, but particularly in the transportation, storage, communication and utilities sector and in the services sector. Given the relative stability of these industries, employment in this category is not dependent on economic conditions. Moderate, though below-average employment growth is expected for business services salespersons throughout the forecast period.

Although recent labour market conditions have not been favourable for this occupational area (its unemployment rate was above average), they have improved in recent years.

Work in this field is not seasonal, nor is part-time employment significant.

Earnings[1]

The wages for junior business services salespersons (salary plus bonus and commission) ranged from $24,800 to $42,665 in 1986 across Canada. Senior salespersons' incomes varied from $30,141 to $54,790.

The National Graduate Survey reported average annual earnings of $29,895 for university graduates in 1984 and $16,800 for community college graduates who had been working in these occupations for two years.

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[1] Sobeco Group, *Sobeco Management Compensation in Canada*, 1986.

Fire-Fighting Occupations

6111

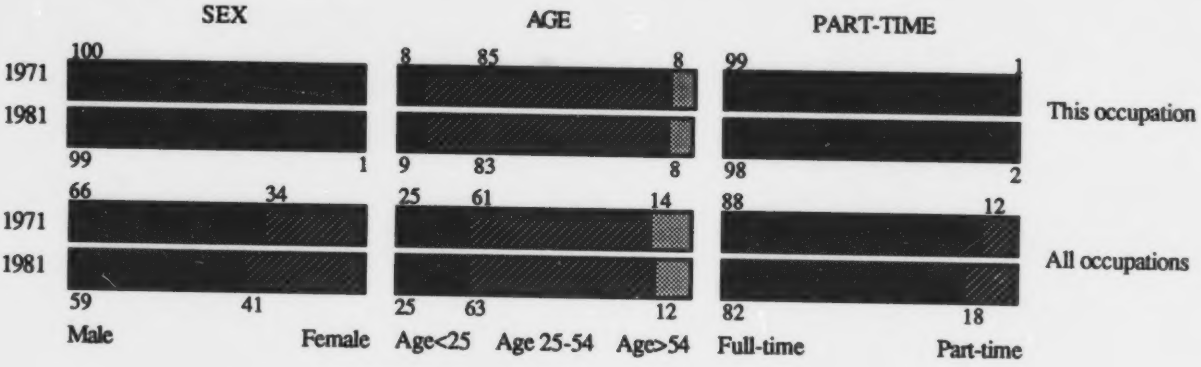
Employment Trends and Projections

	Employment 1981	Employment 1986	Employment 1995	Average Annual Growth Rate (%) 1971-81	Average Annual Growth Rate (%) 1981-86	Average Annual Growth Rate (%) 1987-95
This Occupation	25,300	27,300	29,000	3.0	1.5	0.7
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation 1987-95	This Occupation % of 1987 Jobs	All Occupations % of 1987 Jobs
Net New Job Openings	1,700	6.1	11.1
Replacement Openings	9,900	36.2	49.2
Total Job Openings	11,600	42.3	60.3

CENSUS – 1971 and 1981 (%)



1981 CENSUS – Main Industries of Employment (%)

Public Administration (100)
- Municipal+Oth Gov't (91)
- Federal Admin (5)
- Provincial Admin (3)

Geographic Distribution of Employment – 1981 (%)

Newfoundland	2.4	Ontario	37.9
Prince Edward Island	0.1	Manitoba	5.2
Nova Scotia	3.9	Saskatchewan	3.9
New Brunswick	2.7	Alberta	10.7
Quebec	19.1	British Columbia	13.5

Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
- College (1981-86)	24	36.9
- University (1981-86)	29	44.6
Trade Vocational Schools (1983/84 only)	12	18.5

Fire-Fighting Occupations

6111

Job Environment

This occupational group is concerned with fighting fires and protecting lives and property against fire. When not extinguishing fires, fire-fighters maintain equipment and respond to other emergency calls, and may administer para-medical aid. The work in this occupation is dangerous and physically demanding. Conditions include exposure to fumes and hazardous odours.

Educational Background and Skills

Most fire-fighters are trained on the job. Since fire-fighting is primarily a municipal responsibility, entrance criteria and training procedures vary between communities. In general, however, applicants must have 20/20 vision, a driver's licence, be physically fit, and meet certain height and weight requirements. The minimum education required is usually Grade 12, with a background in physics, mathematics and chemistry. Preference may be given to applicants who are graduates of community college courses in fire prevention and safety. A knowledge of first aid and mechanics can be an asset. The formal training of recruits can last from one to 12 weeks (depending on community size and resources) and is usually followed by a probationary period of six to 18 months. In-service training may continue throughout the fire-fighter's work life.

Nature of Supply

Of the university graduates entering this labour force, most hold degrees in geography, forestry and physical education. Community college graduates generally have completed programs in nursing, protection/correction or forestry technologies.

The household sector is the most important source of new firefighters in Canada. Immigrants, the military and workers from other occupations only marginally supplement this labour force.

At the time of the 1981 census, only 1% of fire-fighters were women. This proportion may increase in coming years, owing to the recent removal of some recruitment restrictions. The average age of fire-fighters was 39 in 1981, virtually unchanged from 10 years earlier. Most persons enter this profession between the ages of 25 and 34. Retirements start at age 50, which suggests a career length of at least 15 to 25 years. Since small communities may rely on a volunteer fire department, employment opportunities are primarily limited to large municipalities. The possibility of advancement and training increases with community size and departmental resources. The person-per-fire-fighter ratio is approximately the same in each province.

Market Conditions and Job Prospects

The employment outlook for these occupations calls for below-average growth over the forecast period, based on employment patterns in the public administration sector. This forecast differs from the situation between 1971 and 1981, when employment grew at an average pace. Employment slowed to below average during the early 1980s. Job openings resulting from losses due to death and retirement are expected to be below average, although they will account for most of the 11,600 openings expected in the forecast period.

Labour market conditions for fire-fighters were about the same in 1986 as in the preceding few years: about average, compared with conditions for all occupations.

Employment in this group is not vulnerable to changes in the business climate, since firefighting is an essential service provided by governments through all phases of the business cycle. This occupation is not seasonal. More part-time work, including volunteer work, is available in fire-fighting than in other occupations. Technological innovation has been of assistance to fire-fighters, but is not an employment issue.

Earnings

Pay ranges, which vary more in this occupational group than in most occupations, depend on position and the population served. Fire chiefs in large cities are generally paid slightly more than twice the salary of a first-class fire-fighter, whose annual salary ranges from $20,800 to $37,600.[1] The National Graduate Survey reported 1984 average earnings of $27,000 for 1982 graduates working in this occupation.

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[1] International Association of Firefighters, 1986.

Police Officers and Detectives, Government

6112

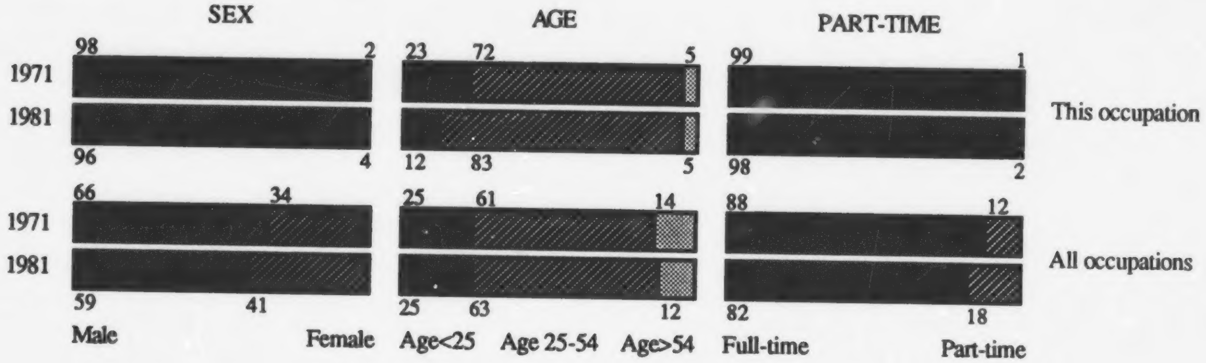
Employment Trends and Projections

	Employment			Average Annual Growth Rate (%)		
	1981	1986	1995	1971-81	1981-86	1987-95
This Occupation	56,200	59,400	63,800	3.5	1.1	0.9
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation		All Occupations
	1987-95	% of 1987 Jobs	% of 1987 Jobs
Net New Job Openings	4,200	7.0	11.1
Replacement Openings	17,600	29.5	49.2
Total Job Openings	21,800	36.5	60.3

CENSUS - 1971 and 1981 (%)



1981 CENSUS - Main Industries of Employment (%)

Public Administration (100)
- Municipal+Oth Gov't (55)
- Federal Admin (26)
- Provincial Admin (19)

Geographic Distribution of Employment - 1981 (%)

Newfoundland	1.4	Ontario	36.8
Prince Edward Island	0.4	Manitoba	4.5
Nova Scotia	2.6	Saskatchewan	4.0
New Brunswick	2.5	Alberta	8.4
Quebec	28.2	British Columbia	10.6

Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
- College (1981-86)	362	64.0
- University (1981-86)	149	26.3
Trade Vocational Schools (1983/84 only)	55	9.7

Police Officers and Detectives, Government

6112

Job Environment

This occupational group includes all law enforcement personnel in Canada, including all provincial police constables and detectives, as well as the Royal Canadian Mounted Police (RCMP). The police constable's responsibility is to protect life, maintain peace, enforce laws and provide assistance in any type of emergency. RCMP responsibilities, which vary according to the location, involve advanced ballistics, toxicology and criminology work. The skill mix of police specialists is increasing, as technical advances continue to affect the scientific methodology used in police work. With the exception of administration officers, police constables work outdoors, often in dangerous situations. A position as police constable can lead to administrative and management jobs.

Educational Background and Skills

Recruitment requirements and training vary across Canada. Basic qualifications generally include Canadian citizenship, good physical condition, a minimum age of 18 years, a valid driver's licence and Grade 12 or the equivalent. Preference is increasingly given to candidates with post-secondary training, especially to people with work-related community college and university courses. Previous experience in the military, or in an occupation involving interpersonal skills, is also an asset. Recruitment procedures include various tests (for example, for fitness) and a medical examination. Following recruitment are three weeks to six months of physical, technical and general training. After this, a period of field training consisting of a series of work assignments may be required. Depending on the force, advanced courses of instruction may be available throughout the police officer's professional career. Advancement normally occurs from within the force and depends on individual leadership qualities, initiative and service experience.

Nature of Supply

Most recruits are from the household sector and the formal education system, the military supplying only limited numbers. Of student recruits, 56% are graduates of community college programs in protection and correction, while the remainder are from trade/vocational programs.

In 1981, 4% of police officers were women. Although small, this percentage represents a significant increase over the number in 1971. The average age in 1981 was 35; the fact that this is marginally higher than 10 years earlier possibly reflects the impact of rising average levels of educational preparation. Most persons employed in this field are between the ages of 21 and 31. Labour force withdrawals start around age 36, suggesting a relatively short career, taking into account movement to related occupations. The provincial distribution of employed police officers is roughly proportional to that of the population as a whole.

Market Conditions and Job Prospects

The employment outlook for this occupational group calls for below-average growth into the mid-1990s, based on employment patterns in the municipal, provincial and federal administration sectors. This is a departure from trends in the 1970s, when employment grew at an average pace. In the 1981 to 1986 period, employment slowed down to below average. In the forecast period, job openings resulting from losses due to death and retirement are expected to be about average, although more numerous than newly created jobs. A total of 21,800 additional police officers will be required over the next eight years.

Labour market conditions for police officers declined in 1986 and are still not as favourable as in the 1970s. However, relative to other occupations, they rank among the best.

Employment in this field is susceptible to budgetary fluctuations affecting government spending in this area. There is no seasonal variation in employment and part-time employment is not a factor. Changing technology, including increased computer use, has been helpful in crime prevention and other police work, but has not affected employment opportunities.

Earnings

Pay ranges in this occupational group are wider than in most occupations and depend on the force (provincial police, RCMP or municipal police), the size of the city, the complexity of the work, and on the supervisory aspects of the positions. Salaries range from $21,316 for police cadets to $49,403 for senior staff sergeants and $81,300 for Sergeant Major Officers (RCMP). Salaries for police chiefs and supervisory personnel are 20% to 30% higher than for first-class constables. The National Graduate Survey reported average 1984 earnings of $25,000 for 1982 graduates who had been working in this occupation two years.

Guards and Related Security Occupations 6115

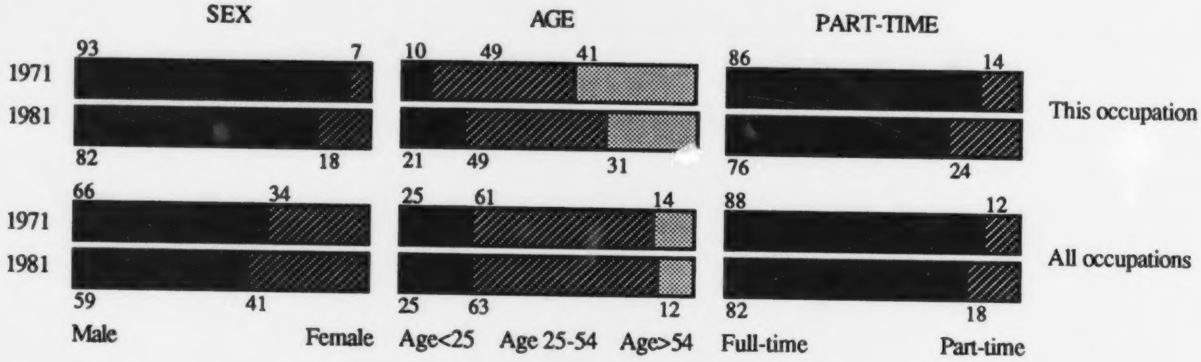
Employment Trends and Projections

	Employment			Average Annual Growth Rate (%)		
	1981	1986	1995	1971-81	1981-86	1987-95
This Occupation	75,700	82,200	94,700	4.7	1.6	1.4
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation		All Occupations
	1987-95	% of 1987 Jobs	% of 1987 Jobs
Net New Job Openings	10,200	12.1	11.1
Replacement Openings	49,900	59.1	49.2
Total Job Openings	60,100	71.2	60.3

CENSUS – 1971 and 1981 (%)



1981 CENSUS – Main Industries of Employment (%)

Services (50)
- Business Services (34)
- Education (7)
- Misc Services (2)

Public Administration (27)
- Provincial Admin (11)
- Federal Admin (9)
- Municipal + Oth Gov't (7)

Manufacturing (9)
- Pulp + Paper (1)
- Wood (1)
- Primary Metals (1)

Geographic Distribution of Employment – 1981 (%)

Newfoundland	2.2	Ontario	35.1
Prince Edward Island	0.4	Manitoba	3.4
Nova Scotia	3.7	Saskatchewan	2.6
New Brunswick	3.1	Alberta	7.5
Quebec	32.0	British Columbia	9.7

Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
- College (1981-86)	332	43.9
- University (1981-86)	138	18.3
Trade Vocational Schools (1983/84 only)	286	37.8

Guards and Related Security Occupations

6115

Job Environment

This occupational group includes correctional officers, watchmen, plant guards, school-crossing guards and some administrative officers. Correctional officers are responsible for maintaining security and attending to the daily welfare of the inmates. They are trained to deal with dangerous situations, use tactical weapons and practise first aid and fire prevention. Their work can lead to more specialized positions and into senior management. Most persons in these occupations work shifts, usually in the highly structured confines of an institution.

Educational Background and Skills

Employment requirements and training vary considerably according to the province and the type and location of the position. Secondary school graduation is usually required, although Grade 10 or Grade 11 is acceptable in some provinces. Candidates with a post-secondary education (for example, a community college program in corrections) or work experience in a related field are preferred. Newfoundland requires completion of a six-week community college correctional officer training program prior to employment. Depending on the position, candidates may also have to hold a valid driver's licence, be bondable or pass a physical examination. Occupational training is normally received on the job, and can last for two weeks to three months. Institutions are increasingly training officers in behavioural disorders and their control, as well as in other human relations areas. For some positions, licensing may be mandatory in certain provinces. Advancement in this field is generally based on the individual's work record and abilities.

Nature of Supply

Most people enter this field through the formal education system, primarily from secondary school programs. The household sector is also a major source of new guards and other security personnel.

The proportion of women in this work force, which is low compared with other occupations, increased dramatically to 18% in 1981. This trend should continue as more institutions hire women. The average age of guards and other security personnel was 42 in 1981, six years younger than in 1971. The proportion of the labour force under 25 almost doubled during this 10-year period, while the number 55 or over declined significantly. The older population, which still represents a high proportion of the work force, will cause the labour supply to decrease significantly in coming years owing to retirements. Current statistics suggest that most people enter this occupation between the ages of 20 and 24, although entry may occur at any age up to retirement.

Market Conditions and Job Prospects

The employment outlook for this occupational group calls for about average growth over the next eight years, based on the employment outlook for the services, public administration and manufacturing sectors. This contrasts with the 1970s trend of faster-than-average employment growth. Hirings resulting from replacement of personnel lost through death and retirement are expected to be above average and will constitute the largest proportion of all hirings for this group in the forecast period. Approximately 60,000 additional correctional officers and other security personnel will be required in all over the next eight years.

Labour market conditions for correctional officers improved in 1986 over the preceding few years, although they are now average in comparison with those for other occupations.

Employment of correctional officers is only mildly sensitive to fluctuations in the business climate. Seasonal variation is not a significant factor. The incidence of part-time work, however, is above the average for all occupations. Increased awareness of the value of security personnel in reducing vandalism and theft has led to increased employment opportunities in these occupations.

Earnings

Pay ranges in this occupational group are fairly fixed. Depending on the extent of security, type of work, and the supervisory aspects of the position, they range from $15,425 to $26,108 for first-level corrections officers. The National Graduate Survey reported 1984 average annual earnings of $17,000 for 1982 graduates working in this field.

Supervisors: Food and Beverage Preparation and Related Service Occupations

6120

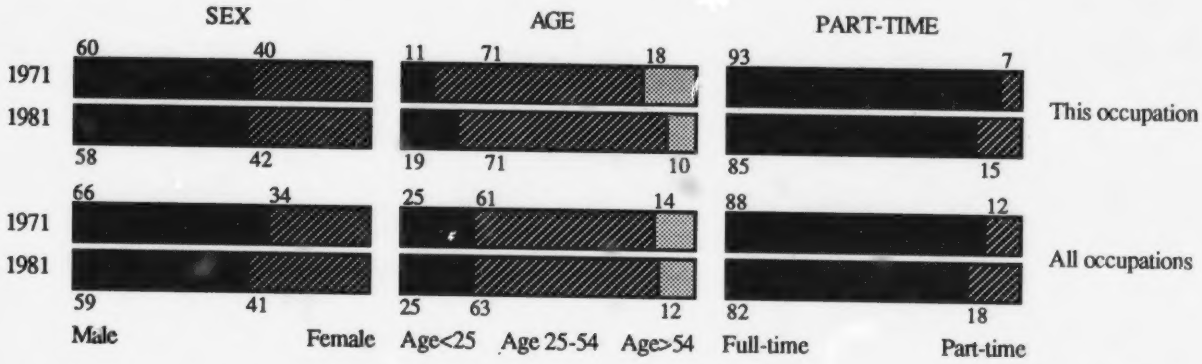
Employment Trends and Projections

	Employment 1981	Employment 1986	Employment 1995	Average Annual Growth Rate (%) 1971-81	Average Annual Growth Rate (%) 1981-86	Average Annual Growth Rate (%) 1987-95
This Occupation	53,300	60,200	80,900	5.5	2.5	3.2
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation 1987-95	This Occupation % of 1987 Jobs	All Occupations % of 1987 Jobs
Net New Job Openings	18,000	28.6	11.1
Replacement Openings	29,300	46.6	49.2
Total Job Openings	47,300	75.2	60.3

CENSUS – 1971 and 1981 (%)



1981 CENSUS – Main Industries of Employment (%)

Services (93)
- Accommodation + Food (81)
- Hospitals (4)
- Education (4)

Trade (3)
- Retail Trade (3)

Public Administration (1)

Geographic Distribution of Employment – 1981 (%)

Newfoundland	1.6	Ontario	39.4
Prince Edward Island	0.5	Manitoba	4.3
Nova Scotia	3.3	Saskatchewan	3.7
New Brunswick	2.4	Alberta	10.2
Quebec	21.2	British Columbia	13.2

Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
- College (1981-86)	115	30.3
- University (1981-86)	118	31.1
Trade Vocational Schools (1983/84 only)	146	38.5

For further information, contact:

Canadian Federation of Chefs de Cuisine
35 du Versant
Hull, Quebec J8Z 2E3
(613) 954-3969

Canadian Restaurant and Food Services Association
Suite 1201
80 Bloor Street West
Toronto, Ontario M5S 2V1
(416) 923-8416

Supervisors: Food and Beverage Preparation and Related Service Occupations

6120

Job Environment

Supervisors in this classification include cafeteria supervisors, head chefs, head waiters/waitresses and maîtres d'hôtel. These food-service managers supervise staff, co-ordinate service and oversee housekeeping, costs and sales. Experienced managers rise rapidly to senior positions. Work in these occupations can be fast-paced, challenging and complex.

Educational Background and Skills

Many employees in food service management occupations have no formal education in their field, but have attained their position on the basis of on-the-job experience and an acquired understanding of both business and client relations. This remains a possible means of entering the higher level jobs in this classification; however, formal preparation will become increasingly important as Canada's food service industry grows in complexity. Programs in food preparation and food service administration are available from some secondary schools, community colleges (programs lasting one to four years) and universities. For persons already in food service who aspire to a career in management, continuing education is available through evening or correspondence courses.

Nature of Supply

Important sources of new entrants to this labour force include the household sector, the education system and workers from related occupations, primarily in food and beverage serving. The total number of entrants from post-secondary programs of study can be divided almost evenly into graduates of trade/vocational institutes, community colleges and universities. Most graduates (approximately 75%) have completed programs in occupation-related study areas (cooking, other food preparation or food and household science, management, administration or commerce, and service industry technology).

The average age of this labour force was 37 in 1981, a slight decline from that of 10 years earlier. During that period, the proportion of the population aged 24 or under increased significantly. The number of women increased marginally between 1971 and 1981 and remains moderately above the average for the labour force as a whole. Although most people enter this occupation between the ages of 20 and 24, significant numbers continue to enter up to age 44, reflecting the career process described above.

Market Conditions and Job Prospects

The employment outlook for these occupations calls for above-average growth, based on growth prospects for the accommodation and food services sector. This would parallel the 1970s situation, where employment grew faster than average. Approximately 47,300 additional food-service managers will be required to fill new jobs and to replace personnel in existing jobs over the next eight years. Hirings resulting from replacement of workers lost through death, retirement and returns to the household and the education system are expected to be just slightly below average, but will still account for the majority of all new openings.

Labour market conditions for food-service managers improved in 1986 over the preceding few years, but they are still not as favourable as prior to the 1981-1982 recession. Relative to labour market conditions for other occupations, however, they rank among the most favourable.

Employment of food-service managers can be somewhat susceptible to fluctuations in the overall business climate. There tends to be less than average part-time work and little seasonal variation in this occupational area, compared with other occupations. As the need for convenience in the food service industry increases, workers may require greater skills and more advanced courses in food service administration and technology to meet employer demands.

Earnings

Pay ranges in the food-service managers group vary according to the province and the area in each province. Hourly wage rates vary from $4.50 in Charlottetown to $20.00 in Vancouver for supervisory personnel in food preparation.[1] Hotel food and beverage directors earn an average salary ranging from $28,000 to $42,000 depending on the size of the hotel.[2] The National Graduate Survey reported average annual earnings of $16,000 to $18,000 in 1984 for 1982 post-secondary graduates working in this occupation.

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[1] Canadian Restaurant and Food Services Associations, *1986 Wage Rate Survey*, 1986.

[2] *Renard International Report*, 1985.

Chefs and Cooks

6121

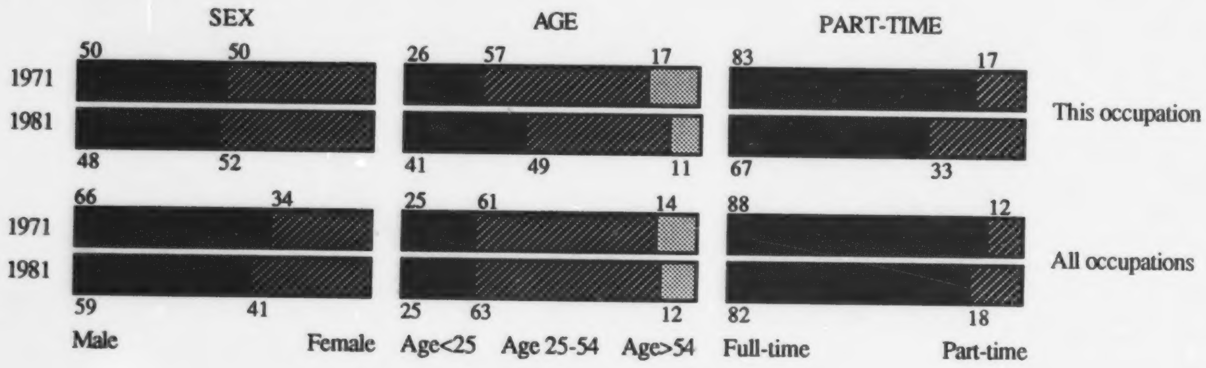
Employment Trends and Projections

	Employment 1981	Employment 1986	Employment 1995	Average Annual Growth Rate (%) 1971-81	Average Annual Growth Rate (%) 1981-86	Average Annual Growth Rate (%) 1987-95
This Occupation	143,000	161,600	212,300	6.7	2.5	2.9
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation 1987-95	This Occupation % of 1987 Jobs	All Occupations % of 1987 Jobs
Net New Job Openings	44,000	26.1	11.1
Replacement Openings	58,200	34.6	49.2
Total Job Openings	102,200	60.7	60.3

CENSUS – 1971 and 1981 (%)



1981 CENSUS – Main Industries of Employment (%)

Services (91)
- Accommodation + Food (72)
- Hospitals (8)
- Oth Health Services (4)

Trade (3)
- Retail Trade (3)

Public Administration (2)
- Federal Admin (1)

Geographic Distribution of Employment – 1981 (%)

Newfoundland	1.6	Ontario	31.9
Prince Edward Island	0.5	Manitoba	4.3
Nova Scotia	3.1	Saskatchewan	3.7
New Brunswick	2.9	Alberta	9.4
Quebec	29.3	British Columbia	12.9

Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
- College (1981-86)	208	18.9
- University (1981-86)	56	5.1
Trade Vocational Schools (1983/84 only)	834	76.0

For further information, contact:

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(613) 954-3969

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Toronto, Ontario M5S 2V1
(416) 923-8416

Chefs and Cooks

6121

Job Environment

This occupational group includes all types of cooks — institutional, short-order and specialty cooks, as well as chefs. Cooks work with specialized food preparers and nutritionists, prepare and cook food under time constraints and occasionally organize budgets. The style of cooking depends on the operation and food specialties of the establishment. In major restaurants and hotels, senior chef and cook are high-level positions incorporating managerial responsibilities with kitchen skills. Career paths often lead to hotel (or other) administrative positions. Typically, persons in this occupation work in institutions, small business, large recreational chains or resorts and are involved in extensive food preparation, organization and display.

Educational Background and Skills

Many cooks and chefs started as dishwashers or waiters/waitresses, progressing to their current position as they gained experience and as employment opportunities arose. Although this route is still possible, career prospects are much better for individuals with relevant vocational preparation. The level of education varies with the position. In general, chefs have more training, skills and experience than cooks. While some vocational high schools offer a food option program, apprenticeship combines up to three years of theoretical instruction at a community college or vocational institute with periods of practical in-service training. Upon successful completion of this process, students are qualified to write an interprovincial exam to become a certified journeyman/woman cook. Other forms of training include adult retraining (individual participants are sponsored by the federal government), chef pre-employment and culinary management programs, which are available at community colleges and vocational institutes. Certification programs are being developed by the Canadian Federation of Chefs de Cuisine.

Nature of Supply

Most people enter this field from either the formal education system or the household sector, the military and immigration contributing only a small number. Inter-provincial movement is insignificant as a source of new cooks and chefs. Almost 50% of those coming from the formal education system have graduated from vocational programs in cooking and food preparation. The remainder are graduates of community college programs in service industry technologies or institutional management (10% of the total), or of various post-secondary programs seemingly unrelated to the profession.

In 1981, 52% of the labour force were women, a slight increase over the proportion of 10 years earlier. The average age of cooks and chefs fell marginally during this period, from 39 years in 1971 to 33 years in 1981. Current statistics suggest that most people enter this occupation prior to the age of 25, although entry continues through to age 54. Retirements begin at approximately age 60, implying a normal career length of up to 40 years. In general, the distribution of cooks and chefs within Canada is much the same as for the population as a whole.

Market Conditions and Job Prospects

Employment growth in this group was extremely rapid during the 1970s and has not really declined since; projected growth is expected to be well above the average for all occupations. Hirings for replacement of losses due to death and retirement are expected to be about average.

Labour market conditions for chefs and cooks improved in 1986 over the previous few years. Compared to the labour market conditions for other occupations, those for chefs and cooks still rank among the most favourable. A trend toward eating out, as well as rising income levels and multiple worker families are expected to increase the demand for food services and therefore, chefs and cooks. The Canadian economy will need approximately 100,000 additional workers to fill new and existing positions over the next nine years.

Since employment in this occupational group is concentrated in the accommodation and food industries, chefs and cooks are vulnerable to fluctuations in the overall economic climate. There tends to be above-average seasonal variation in employment as well as an above-average incidence of part-time work, compared with other occupations, primarily within the cook occupations. Changing technology in the work place, such as microwave cooking, adds to a chef's knowledge requirements but will not likely affect overall employment in the occupation.

Earnings

Pay ranges tend to be very wide compared with most occupations, and depend on experience, type of training required, and the supervisory aspects of the position. Pay scales range from between $9,000 and $17,000 per year (short-order, institutional) to between $25,000 and over $40,000 (specialized formal chef).[1] The National Graduate Survey reported average annual earnings of $13,000 in 1984 for graduates who had worked in this occupation two years.

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[1] Canadian Association and Food Services Association.

Food and Beverage Serving Occupations 6125

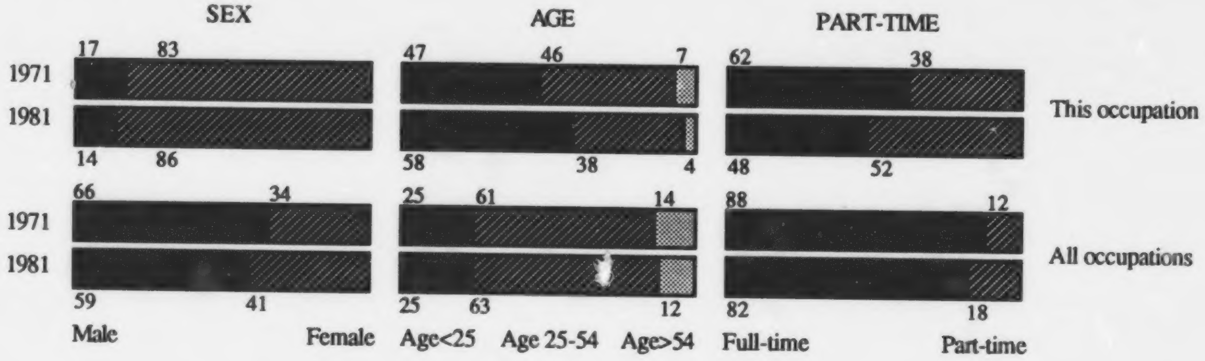
Employment Trends and Projections

	Employment			Average Annual Growth Rate (%)		
	1981	1986	1995	1971-81	1981-86	1987-95
This Occupation	218,800	247,600	336,300	5.7	2.5	3.3
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation		All Occupations
	1987-95	% of 1987 Jobs	% of 1987 Jobs
Net New Job Openings	77,300	29.8	11.1
Replacement Openings	76,200	29.4	49.2
Total Job Openings	153,500	59.2	60.3

CENSUS – 1971 and 1981 (%)



1981 CENSUS – Main Industries of Employment (%)

Services (94)
- Accommodation + Food (87)
- Recreation (3)
- Hospitals (1)

Trade (4)
- Retail Trade (4)

Geographic Distribution of Employment – 1981 (%)

Newfoundland	1.1	Ontario	38.5
Prince Edward Island	0.5	Manitoba	5.1
Nova Scotia	2.9	Saskatchewan	4.1
New Brunswick	2.2	Alberta	9.7
Quebec	21.6	British Columbia	14.2

For further information, contact:

Canadian Restaurant and Food Services Association
Suite 1201
80 Bloor Street West
Toronto, Ontario M5S 2V1
(416) 923-8416

Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
- College (1981-86)	307	23.3
- University (1981-86)	341	25.9
Trade Vocational Schools (1983/84 only)	671	50.9

Food and Beverage Serving Occupations

6125

Job Environment

This occupational group includes a variety of positions in food service, from bus boy and girl and car hop to formal dining room waiter or waitress. Waiters and waitresses set the mood of service, pace the meal, recognize problems and sales opportunities and ensure that the highest possible standards of food and attentiveness are provided for the patron. They may move into one of a range of related occupations: host, bartender, food and beverage manager, banquet supervisor or even restaurant, resort or hotel manager. Typically, persons in this occupation work indoors in shifts. Waiters and waitresses are continuously on their feet and the pace of work may become hectic during mealtime peaks. Through it all, they must deal quickly but pleasantly with all manner of customers.

Educational Background and Skills

There is no educational requirement for employment in these occupations. However, depending on the range of the menu, the nature of the clientele, the type of establishment and the complexity of service, individual employers may require a specific level of preparatory training and experience. On-the-job training in this field may mean a position as a counter person, bus person or kitchen helper, with career advancement coming with experience, formal training and as new employment opportunities become available. Formal vocational preparation may take the form of a three-month to two-year program of study offered by various community colleges and technical institutes. Further information regarding local training needs and availability can be obtained from colleges and industry trade associations (for example, the Canadian Restaurant and Foodservice Association). The most appropriate means of ensuring success in this occupation is through a combination of formal training and progressive levels of experience.

Nature of Supply

Most entrants to this occupational work force come from either the formal education system or the household sector. Immigration, the military and net movements between occupations only marginally supplement the number of food and beverage servers in Canada. Of persons entering this occupational work force from the education system, a very small proportion (approximately 12%) have studied programs directly linked to the profession. The remainder are graduates of a variety of study programs.

At the time of the 1981 census, almost 60% of food and beverage servers were aged 24 or under, while only 4% were over 54. The average age was 27, and almost 86% of the work force were women. Entry to this field can occur at any age, although current statistics suggest that most people are initially employed between the ages of 15 and 24, with labour market withdrawals beginning in small numbers almost immediately. A typical career length cannot be distinguished, although the low average age indicates that it may be very short. The geographical distribution of food and beverage servers approximates distribution of the general population.

Market Conditions and Job Prospects

Employment growth in this group was one of the highest during the 1970s, but has since slowed down, although growth still is projected to be well above the average for all occupations. Job openings resulting from losses due to death and retirement are expected to be well below average, but the high rate of employee turnover characteristic in this field means that most employment opportunities result from replacement openings.

Labour market conditions for waiters and waitresses were better in 1986 than in preceding years, but they are still not as favourable as they were prior to the 1981-1982 recession. Relative to conditions for other occupations, they still rank among the most favourable. The personal and hospitality services sector being one of the fastest growing service industries, related career opportunities will continue to arise. Approximately 153,000 additional waiters and waitresses will be required to fill new jobs and replace personnel in existing jobs over the next seven years.

Employment in this occupational group, which is concentrated in the service sector and, specifically, the accommodation and food industries, is susceptible to fluctuations in the overall business climate. There is some seasonal variation in employment and much part-time work. Turnover of personnel is high, compared with other occupations. As the trend toward eating out continues and the number and variety of restaurants grow, the specific skills required for certain types of waiters and waitresses will also change.

Earnings

Pay ranges vary more than in other occupations, because tips, which augment income, can contribute up to three times more than the hourly wage. Depending on the complexity of the service, experience and the supervisory aspects of the position, the hourly rate may range from $3.28 to $9.94.[1] The National Graduate Survey reported 1984 average annual earnings of $7,959 and $8,639 for 1982 university and community college graduates working in this occupation.

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[1] Canadian Restaurant and Foodservices Association, October 1985.

Funeral Directors, Embalmers and Related Occupations

6141

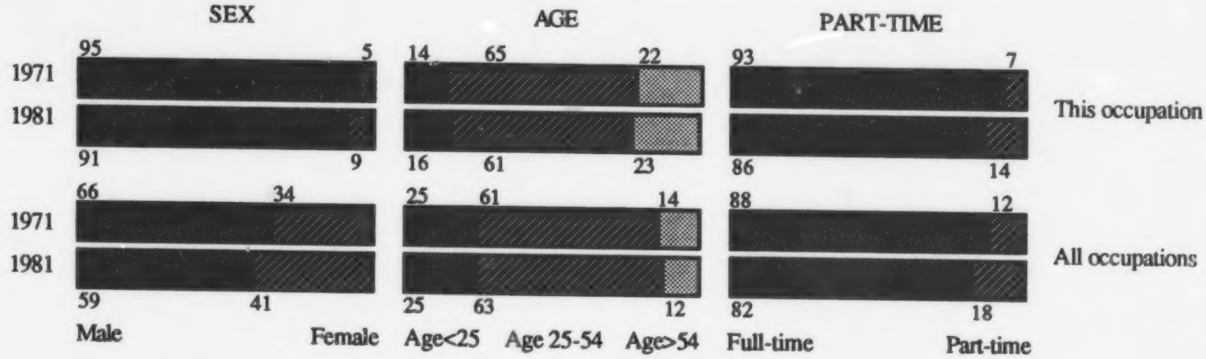
Employment Trends and Projections

	Employment 1981	 1986	 1995	Average Annual Growth Rate (%) 1971-81	 1981-86	 1987-95
This Occupation	5,000	6,100	7,000	0.5	3.8	1.4
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation 1987-95	 % of 1987 Jobs	All Occupations % of 1987 Jobs
Net New Job Openings	800	12.1	11.1
Replacement Openings	2,100	34.2	49.2
Total Job Openings	2,900	46.3	60.3

CENSUS – 1971 and 1981 (%)



1981 CENSUS – Main Industries of Employment (%)

Services (100)
- Personal Services (100)

Geographic Distribution of Employment – 1981 (%)

Newfoundland	1.6	Ontario	44.3
Prince Edward Island	0.5	Manitoba	2.4
Nova Scotia	5.8	Saskatchewan	4.3
New Brunswick	4.2	Alberta	8.8
Quebec	19.7	British Columbia	7.9

Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
- College (1981-86)	112	100.0
- University (1981-86)	0	0.0
Trade Vocational Schools (1983/84 only)	0	0.0

Funeral Directors, Embalmers and Related Occupations 6141

Job Environment

This occupational category includes funeral directors, embalmers, cremators, morticians and undertakers. Funeral directors are recognized as an integral part of the health care team. Besides their work in embalming and restoring human corpses, they provide legal and emotional support to the bereaved. They plan and co-ordinate the activities and details associated with funerals, burials and cremations, which involves contacting cemeteries, receiving and arranging flowers and co-ordinating religious and burial or cremation services.

Educational Background and Skills

Although the functions of a funeral director are generally distinct from those of an embalmer, the educational preparation for both occupations is virtually the same. The requirements may vary from province to province, although secondary school graduation is necessary for entry into most programs of study. Backgrounds in chemistry, biology, sociology and accounting are definite assets. The community college programs that are available in Ontario and Quebec only, combine formal classroom instruction and on-the-job training over a two- to three-year period. In other provinces, training may be provided by the provincial board responsible for professional licensure. Throughout Canada, licensure is a mandatory condition of employment and is awarded to those who pass a provincial association examination. Licensees then begin their career as embalmers. With experience, and as employment opportunities arise, they may attain a position as a funeral director. Persons working in this area must be mature and emotionally stable.

Nature of Supply

Because of the educational requirements, most persons enter this field from the formal education system, although the household sector and other occupations bring a moderate number of persons into this field. Immigration and the military are insignificant sources of supply. Among persons finding employment in this occupation following graduation from post-secondary programs of study, almost 97% hold community college diplomas in either service industries technology (primarily programs of funeral service education) or medical laboratory technologies.

The female proportion of this work force remains small, although the level in 1981 was markedly above that of 10 years earlier. At the time of the 1981 census, the average age of persons in this field was 40 years, little changed from the 1971 average. The age distribution of this occupational labour force also remained quite consistent over the 10-year period. Most persons enter this field between the ages of 20 and 29 years, with a small number of retirements beginning at age 35. A typical career may span 30 to 35 years.

Market Conditions and Job Prospects

Employment growth in this group was marginal during the 1970s, but has since become above average and is expected to be less than the average for all occupations. Hiring resulting from replacement of losses due to death, retirement and withdrawal from the labour force are expected to be below average, although most job opportunities will arise in this manner.

Labour market conditions for funeral directors and embalmers improved slightly in 1986 over the previous few years and currently rank among the best. Approximately 2,900 additional funeral directors and embalmers will be required to fill new jobs and to replace personnel in existing ones over the next eight years.

Employment of this occupational group is mainly in the personal services industry. Being controlled primarily by demographic factors, it is not vulnerable to fluctuations in the overall business climate. An average amount of part-time work is available and no seasonal fluctuation exists. Many funeral directors are self-employed and, in some settings, they supervise embalmers.

Earnings

Pay ranges in this group are standard and depend on the size of the community and the supervisory aspects of the position. Pay scales range from $15,000 to $45,000 annually for senior funeral directors. The National Graduate Survey reported average earnings of $21,667 annually in 1984 for 1982 graduates who had worked in this occupation two years.

Barbers, Hairdressers and Related Occupations 6143

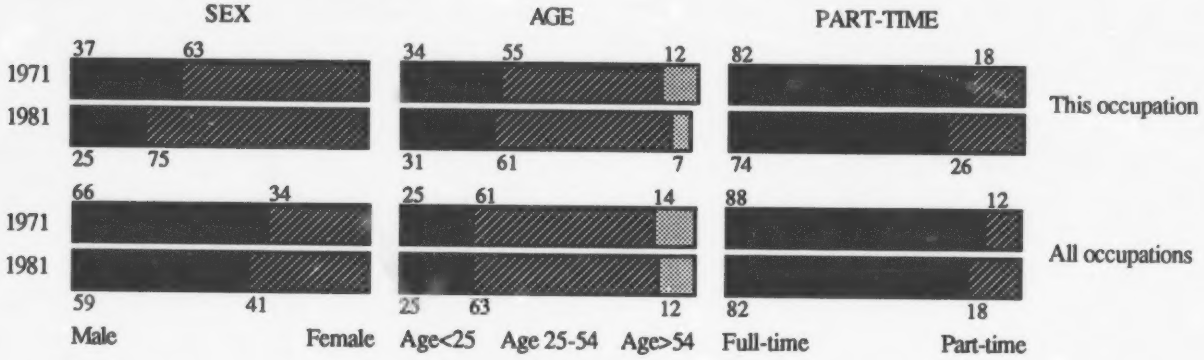
Employment Trends and Projections

	Employment			Average Annual Growth Rate (%)		
	1981	1986	1995	1971-81	1981-86	1987-95
This Occupation	101,200	121,400	134,600	1.7	3.7	0.9
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation		All Occupations
	1987-95	% of 1987 Jobs	% of 1987 Jobs
Net New Job Openings	9,500	7.6	11.1
Replacement Openings	28,900	23.1	49.2
Total Job Openings	38,400	30.7	60.3

CENSUS – 1971 and 1981 (%)



1981 CENSUS – Main Industries of Employment (%)

Services (96)	Trade (4)
- Personal Services (94)	- Retail Trade (3)

Geographic Distribution of Employment – 1981 (%)

Newfoundland	1.3	Ontario	37.4
Prince Edward Island	0.6	Manitoba	4.0
Nova Scotia	3.4	Saskatchewan	3.6
New Brunswick	2.7	Alberta	8.7
Quebec	27.3	British Columbia	10.9

Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
- College (1981-86)	49	5.4
- University (1981-86)	115	12.6
Trade Vocational Schools (1983/84 only)	746	82.0

Barbers, Hairdressers and Related Occupations

6143

Job Environment

This occupational group includes beauty operators, beauticians, cosmetologists, haircutters and other hair processors, such as specialists in tinting and perming. Hairdressers and barbers provide many different creative services, including cutting, shaping, coloring, cleaning, curling, as well as facial treatments and manicures. This work, which is largely manual, requires them to be constantly on their feet. Typically, barbers and hairdressers work in shops, homes or hospitals.

Educational Background and Skills

Specific educational requirements for employment in this field vary according to the province and the specific vocation. In general, prospective barbers and hairdressers must have Grade 10 (or lower in some provinces, although some employers may require higher levels of secondary study), plus six months to three years of training. In some provinces, training may combine formal instruction at a secondary school, community college, private hairdressing school or trade/vocational institute and in-practice learning. Straight apprenticeship or on-the-job training is an alternative. Most provinces require candidates to write a certifying exam upon completion of training. For barbers, the training time required prior to certification is less than for hairdressers. Individuals considering eventual ownership and operation of their own haircutting establishment will find a knowledge of business and bookkeeping techniques beneficial.

Nature of Supply

The majority of persons enter this occupation from the household sector, although movements from the education system are significant. The military and immigration add only a marginal number. Among those coming from the education system, most (88%) have graduated from barber/hairdresser programs at trade/vocational institutes. About 4% have completed community college or trade/vocational institute programs in management and administration.

Most members of this labour force are women (75% in 1981). The average age is 33, slightly below the average for the labour force as a whole. Although individuals may enter this occupation at any age, the majority are first employed before age 25. The average career length is relatively short, ranging from four to six years. Persons remaining in the occupation often open shops of their own.

Market Conditions and Job Prospects

Employment growth in this group was below average during the 1970s and is expected to remain below the average growth rate anticipated for all occupations. Job openings resulting from losses due to death and retirement are expected to be below the average, although they will comprise a large proportion of the 38,400 job openings that will occur over the next eight years, owing to the high degree of turnover in this field.

Relative to labour market conditions for other occupations, those for hairdressers and barbers rank favourably. Employment opportunities for members of this professional group are concentrated in large and medium-size urban areas, although most smaller communities support at least one barber or hairdresser. Cities offer the best opportunities for growth and specialization.

Employment is concentrated in the services sector, specifically the personal services industry, and to some extent in retail trade. Fluctuations in the overall business climate have little effect on this group. Some minor seasonal variation in employment exists, and part-time work is slightly more common than in other occupations. Educational standards are becoming more important in this occupation and, as the range of services expands, are being written into the regulations governing employment in this field.

Earnings

Pay ranges in this occupational group vary according to province, locality and the services provided. The minimum wages for apprentice hairdressers are not high, $140 to $200 per week, but once the apprenticeship is served, the wages are usually better, $275 to $375 per week. Commissions are involved in some shops as well, typically 40% to 60% of the price.

The National Graduate Survey reported 1984 average earnings of between $12,000 and $14,000 for 1982 college and university graduates working in this occupation.

Travel and Related Attendants, Except Food and Beverage 6145

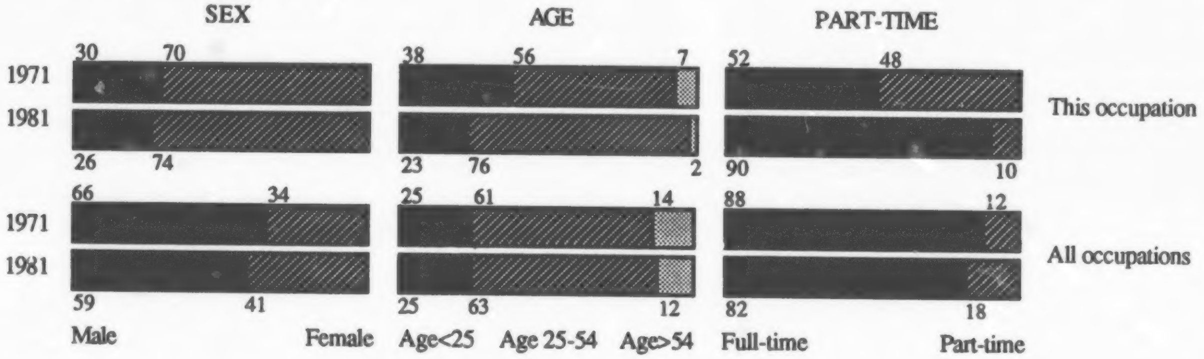
Employment Trends and Projections

	Employment 1981	Employment 1986	Employment 1995	Average Annual Growth Rate (%) 1971-81	Average Annual Growth Rate (%) 1981-86	Average Annual Growth Rate (%) 1987-95
This Occupation	7,300	7,000	7,200	2.3	-0.9	0.2
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation 1987-95	This Occupation % of 1987 Jobs	All Occupations % of 1987 Jobs
Net New Job Openings	100	1.8	11.1
Replacement Openings	3,100	44.2	49.2
Total Job Openings	3,300	46.1	60.3

CENSUS – 1971 and 1981 (%)



1981 CENSUS – Main Industries of Employment (%)

Trans+Stor+Comm+Util (87) - Air Transport (85)	Services (9) - Accommodation+Food (4) - Recreation (2)	Public Administration (2) - Federal Admin (1)

Geographic Distribution of Employment – 1981 (%)

Newfoundland	0.4	Ontario	35.4
Prince Edward Island	0.1	Manitoba	4.5
Nova Scotia	2.4	Saskatchewan	0.4
New Brunswick	0.3	Alberta	8.6
Quebec	24.7	British Columbia	23.0

Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
- College (1981-86)	9	23.1
- University (1981-86)	0	0.0
Trade Vocational Schools (1983/84 only)	30	76.9

Travel and Related Attendants, Except Food and Beverage

6145

Job Environment

This occupational group includes all types of hostesses and stewards in the tourism industry, who attend to the comfort and safety as well as the recreational activities of travellers and hotel guests. The majority are flight attendants. Their work is seldom monotonous and includes obtaining detailed weather forecasts; tending to passengers with special requirements, such as the elderly and children; reviewing safety procedures and providing food and beverage service. Working conditions are good, but involve a cramped work space and irregular hours averaging more than 40 hours a week.

Educational Background and Skills

Although Grade 12 is the minimum requirement, candidates with post-secondary training or several years of experience are given preference. While several community colleges offer flight attendant courses, training usually takes place on the job. The larger airlines provide training courses lasting five to eight weeks, which cover such areas as safety procedures, personalized service to passengers, first aid and grooming. On completion of training, flight attendants may be put on reserve status, meaning they must be ready to fly anywhere at any time.

After a minimum of one year of service, the flight attendant can move up to a purser position by successfully completing a one-month course. A career-minded attendant may eventually reach the position of flight service director.

People in this occupational group require patience, a friendly personality, an ability to deal well with people, fluency in more than one language (especially French), excellent health and good grooming skills.

Nature of Supply

The major sources of new supply to this occupation are the household sector and secondary school graduates. Most people in these occupations are women. The majority of flight attendants work in Ontario (35%), Quebec (25%) and British Columbia (23%), the highest concentration, relative to population, being in British Columbia. The proportion of flight attendants under 25 has dropped markedly since 1971, reflecting the fact that the new supply is coming more from the post-secondary educational system and the household than in the past. The majority of individuals enter the occupation between the ages of 25 and 29 and leave between the ages of 35 and 39, implying a relatively short career span of 10 years.

Market Conditions and Job Prospects

Employment in this occupational group grew moderately during the 1970s, but suffered recession-related losses during the early 1980s. Up until 1995, it is expected to remain static. Nearly all job openings will result from replacement demand. Over the projection period, 3,100 additional workers will be required to replace those who retire, die, emigrate or return to the education system.

Labour market conditions for hostesses and stewards have remained on par with the labour market at large since 1981. With the deregulation of transportation, prospects may improve. Technological changes affecting this occupation are few and have been neutral in effect. Seasonal variation can cause employment to peak in the summer months. Fluctuations in the general economic environment can also affect employment.

Earnings[1]

Salary ranges for the occupations in this group are similar. Depending on experience and the supervisory aspects of the position, they range on average from $1,014 to $2,222 a month for flight attendants and up to $2,815 a month for flight service directors.

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[1] Canadian Airline Flight Attendants' Association, June 1986.

Janitors, Charworkers and Cleaners 6191

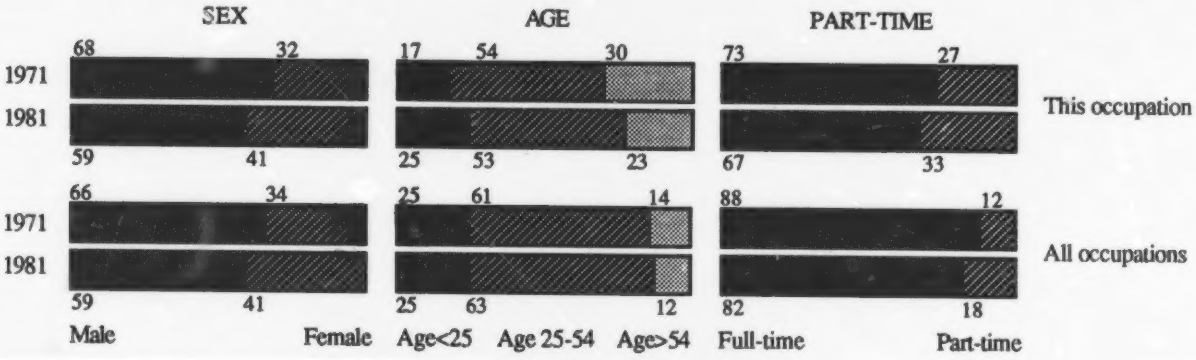
Employment Trends and Projections

	Employment			Average Annual Growth Rate (%)		
	1981	1986	1995	1971-81	1981-86	1987-95
This Occupation	213,000	238,500	276,100	3.0	2.3	1.5
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation		All Occupations
	1987-95	% of 1987 Jobs	% of 1987 Jobs
Net New Job Openings	31,000	12.6	11.1
Replacement Openings	148,100	60.4	49.2
Total Job Openings	179,100	73.0	60.3

CENSUS – 1971 and 1981 (%)



1981 CENSUS – Main Industries of Employment (%)

Services (67)	Manufacturing (10)	Public Administration (6)
- Education (21)	- Food + Beverages (2)	- Municipal + Oth Gov't (3)
- Misc Services (19)		- Federal Admin (2)
- Hospitals (12)		- Provincial Admin (2)

Geographic Distribution of Employment – 1981 (%)

Newfoundland	1.8	Ontario	38.1
Prince Edward Island	0.4	Manitoba	4.6
Nova Scotia	3.1	Saskatchewan	3.9
New Brunswick	2.5	Alberta	9.5
Quebec	24.1	British Columbia	11.5

Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
- College (1981-86)	134	22.4
- University (1981-86)	80	13.4
Trade Vocational Schools (1983/84 only)	385	64.3

Janitors, Charworkers and Cleaners

6191

Job Environment

Other titles in this occupational group are building operator, sanitation engineer, superintendent and floor cleaner. A janitor maintains an assigned building, handling emergencies and carrying out scheduled preventive maintenance, grounds keeping, housekeeping, inventory control and perhaps some administrative duties, such as rent collection and leasing. Supervisory aspects of the job may include the hiring and training of contract staff for specific services. Typically, persons in this occupation are on call at all hours of the day. They constantly deal with people, and must be aware of fundamental rules of health, safety and sanitation.

Educational Background and Skills

Specific educational requirements do not exist in this field, although one or two years of high school is preferred. Most workers receive their training on the job under the guidance of an experienced worker. The training period lasts at least one month, depending on the type of position. Training is also available from vocational schools. Because the tasks of janitors are quite varied, a knowledge of electrical, plumbing carpentry and other technical skills is a strong asset.

Nature of Supply

The household sector and the formal education system (primarily secondary school) are the major areas from which persons enter these occupations. Military personnel, immigrants and persons from other occupations only marginally supplement the group. Most entering this field from the formal education system (over 60%) are graduates of trade/vocational institutes.

In 1981, the average age in these occupations was 40 years, a marginal decrease from the average of 10 years earlier. The proportion aged 55 years and older was almost 23%, significantly above the same figure for the labour force as a whole and indicative of a large number of retirements in the future. According to available statistics, most persons enter these occupations prior to age 24, although entry from each age group is significant up to the early 60s, when retirements begin. Most members of this work force (59%) are men.

Market Conditions and Job Prospects

Employment growth in this group was slightly below average during the 1970s, but has since accelerated and will equal the average for all occupations. Most hirings will stem from replacement of losses due to death and retirement.

Labour market conditions for janitors have improved over the past few years and in 1986 were about the same as prior to the 1981-1982 recession. Relative to labour market conditions for other occupations, those for janitors rank about average. Over the next eight years, approximately 179,100 janitors will be required to fill new jobs and to replace departing personnel.

Employment of this occupational group is concentrated in the education, miscellaneous services and hospital industries of the service sector, but also occurs in the manufacturing and public administration sectors as well as in other industrial sectors. Consequently, the employment of janitors may fluctuate according to the general business climate. There is more part-time work than in other occupations. No significant seasonal trends exist. While changing technology in the work place has been helpful to janitors in their work, it has not had any resulting effect on employment.

Earnings[1]

Pay ranges in this occupational group vary according to the size of the building and the responsibilities and supervisory aspects of the position. Remuneration ranges from the minimum wage up to $13.00 an hour and, in the case of apartment building operators, often includes a rent-free apartment.

The National Graduate Survey reported 1984 annual average earnings of $12,000 to $15,000 for 1982 graduates working in this occupation two years.

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[1] Labour Canada *Wages and Working Conditions in Canada*, 1985.

Livestock Farmers 7113
Crop Farmers 7115
Farmers 7119

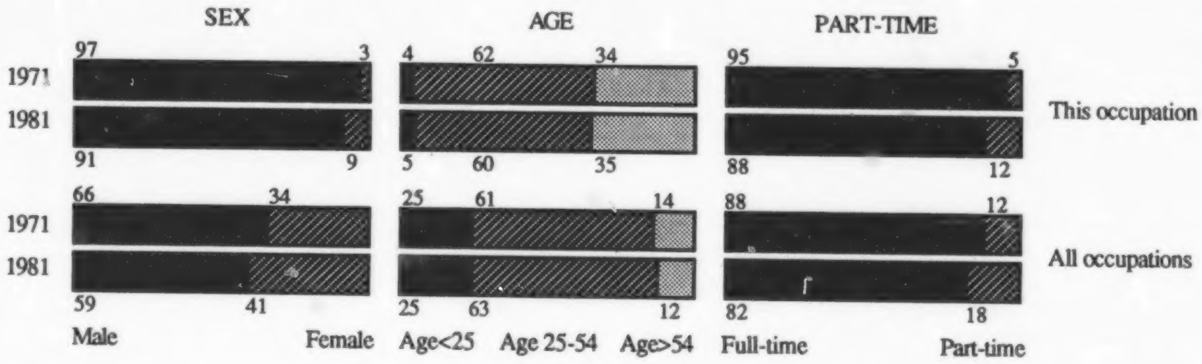
Employment Trends and Projections

	Employment			Average Annual Growth Rate (%)		
	1981	1986	1995	1971-81	1981-86	1987-95
This Occupation	262,100	243,600	251,400	-0.3	-1.5	0.6
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation		All Occupations
	1987-95	% of 1987 Jobs	% of 1987 Jobs
Net New Job Openings	12,500	5.2	11.1
Replacement Openings	199,000	83.3	49.2
Total Job Openings	211,600	88.5	60.3

CENSUS – 1971 and 1981 (%)



1981 CENSUS - Main Industries of Employment (%)

Agriculture (100)
- Agriculture, Other (100)

Geographic Distribution of Employment – 1981 (%)

Newfoundland	0.1	Ontario	25.0
Prince Edward Island	1.0	Manitoba	10.2
Nova Scotia	1.1	Saskatchewan	24.7
New Brunswick	1.0	Alberta	19.1
Quebec	13.7	British Columbia	4.1

Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
- College (1981-86)	73	26.9
- University (1981-86)	86	31.7
Trade Vocational Schools (1983/84 only)	112	41.3

Livestock Farmers 7113
Crop Farmers 7115
Farmers 7119

Job Environment

Many farmers are specialists according to the crop grown or livestock raised on their farms. Crop farmers include grain farmers, fruit farmers, tobacco farmers and vegetable farmers. Similarly, livestock farmers specialize in beef cattle, dairy cattle, hog, sheep or poultry. However, many farmers blend two or more types of operation with no single type of activity dominating.

Animal farming is a strenuous year-round job. Although mechanization has reduced some of the manual labour, an animal farmer must always be present to ensure that the machinery is working, animals are cared for, stalls and pens are cleaned, and the health of the animals is monitored. As breeding and animal raising become more scientific, the successful farmer must also keep up with the latest advances in farm technology in order to maintain a profitable operation.

The workload for crop farmers is considerably more seasonal. They must be prepared to work long and tedious days during the sowing and harvesting seasons with the workload lighter at other times of the year.

Educational Background and Skills

There are no specific educational requirements for employment in these occupational groups. Farm experience is a definite advantage, and farmers must have a good understanding of agricultural technology, animal science and business management techniques. As farming relies more and more upon the use of machines, farmers increasingly must have a knowledge of the operation, service and maintenance of farm machinery.

Nature of Supply

The major sources of new supply into these occupations are newcomers and re-entrants from the household sector as well as graduates from secondary school. Other sources of supply include graduates from the post-secondary education system and immigration. Preliminary data indicates that the number of people moving into these occupations from other related ones will exceed the number of people leaving these occupations to move to other occupations.

The average age (38) and the age structure of these occupational groups have remained relatively stable since 1971. A typical career spans approximately 30 years, with people starting to farm between the ages of 25 and 29.

Most farmers are located in the provinces of Ontario, Saskatchewan and Alberta. The occupation is a predominately male one.

Market Conditions and Job Prospects

The trend toward larger but fewer farms resulted in negative overall growth for these farmer categories during the 1970s. Current employment levels are believed to be at least at a temporary minimum for farmers, with positive growth foreseen over the next eight years. Although some 12,500 new jobs are projected during this time, growth will be considerably slower than the average for all occupations. Nearly all these job opportunities will be created by farmers retiring or leaving the labour force for other reasons.

Farm incomes tend to be more sensitive to environmental conditions (weather, soil erosion, etc.) than to economic conditions. Regulation of a number of farming activities (e.g., poultry, eggs, dairy) reduces the scope for expansion of operations by a farmer, but ensures a protected stable income.

Nursery and Related Workers

7195

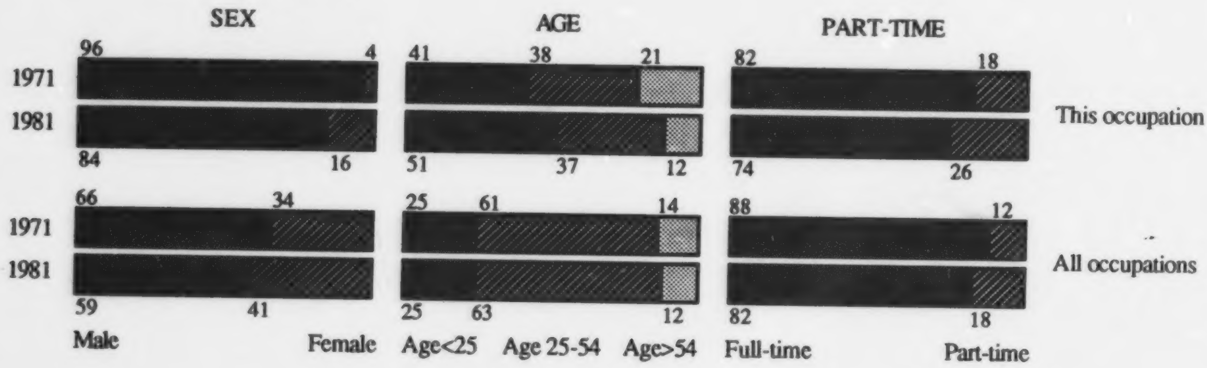
Employment Trends and Projections

	Employment 1981	Employment 1986	Employment 1995	Average Annual Growth Rate (%) 1971-81	Average Annual Growth Rate (%) 1981-86	Average Annual Growth Rate (%) 1987-95
This Occupation	60.600	64.300	72.300	4.7	1.2	1.3
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation 1987-95	This Occupation % of 1987 Jobs	All Occupations % of 1987 Jobs
Net New Job Openings	7.200	11.1	11.1
Replacement Openings	30.000	46.1	49.2
Total Job Openings	37.200	57.2	60.3

CENSUS – 1971 and 1981 (%)



1981 CENSUS – Main Industries of Employment (%)

Services (26)
- Recreation (10)
- Personal Services (5)
- Education (4)

Construction (26)
- Construction (26)

Public Administration (24)
- Municipal+Oth Gov't (17)
- Provincial Admin (5)
- Federal Admin (3)

Geographic Distribution of Employment – 1981 (%)

Newfoundland	0.9	Ontario	41.5
Prince Edward Island	0.6	Manitoba	4.5
Nova Scotia	3.2	Saskatchewan	3.9
New Brunswick	2.1	Alberta	11.2
Quebec	17.6	British Columbia	14.5

For further information, contact:

Canadian Construction Association
85 Albert St., 2nd Floor
Ottawa, Ontario K1P 6A4
(613) 236-9455

Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
- College (1981-86)	226	27.8
- University (1981-86)	202	24.8
Trade Vocational Schools (1983/84 only)	386	47.4

Nursery and Related Workers

7195

Job Environment

Greenskeepers, landscape gardeners, flower growers and grounds maintenance workers are all part of this group in addition to nursery workers. Nursery workers plant, cultivate and harvest trees, shrubs, ornamental and flowering plants in greenhouses, nurseries and on grounds. Their duties involve preparing soil, transplanting plants, grafting, spray watering and pruning plants, trees and shrubs. When plants are ready for shipping, they wrap the roots and earth in plastic sheeting and burlap to ensure safe transportation. Most of the work is manual, requiring considerable bending, stooping, kneeling and lifting. Nursery workers work mainly in climate-controlled conditions but must handle water, chemical fertilizers, soil and plant stock. During the warm months of the year, they work outdoors as well as indoors. In a number of cases, a nursery worker may be required to work with the public, providing information and advice to customers and assisting them in the selection and purchase of products.

Educational Background and Skills

While no specific education is required to become a nursery worker, completion of secondary school is advisable, and completion of a community college program in landscaping and horticultural technology or an apprenticeship program is even better.

Nature of Supply

The major source of new supply to this occupation is the secondary school system. Other sources include the post-secondary education system, re-entrants from the household sector and immigration.

The majority of nursery workers are located in the provinces of Ontario and Quebec. Although this occupation is predominantly male, the number of women becoming nursery workers has been increasing since 1971.

The drop in average age of this occupation from 36 years in 1971 to 31 in 1981 reflects the increased number of nursery workers under the age of 25 and a decrease in those people 54 and over. Nursery workers typically enter the occupation between the ages of 20 and 24, but relatively few continue as nursery workers beyond age 60.

Market Conditions and Job Prospects

Based on expected growth in construction, public administration and agriculture, and on residential and commercial interest in both indoor greenery and landscaping, the employment outlook for nursery and related workers calls for about average growth over the forecast period. This average employment growth differs from the 1970s when employment grew at a faster-than-average rate. Some 7,200 new jobs are anticipated over the next eight years.

A great many nursery and landscaping jobs are part-time in nature (25% in 1981). Employment in this category is also highly seasonal with employment peaks occurring during the warm weather months. However, only employment related to the landscaping of newly constructed sites is sensitive to changing economic conditions for construction. Overall employment has been little affected by changing technology.

Earnings

Labour Canada reported that the hourly rates of pay for nursery workers in 1985 ranged from $5.50 to $8.60, with an average hourly rate of $7.36. For landscape workers, the hourly rates of pay ranged from $5.62 to $11.83 per hour and averaged $8.13 per hour.

Captains and Other Officers, Fishing Vessels

7311

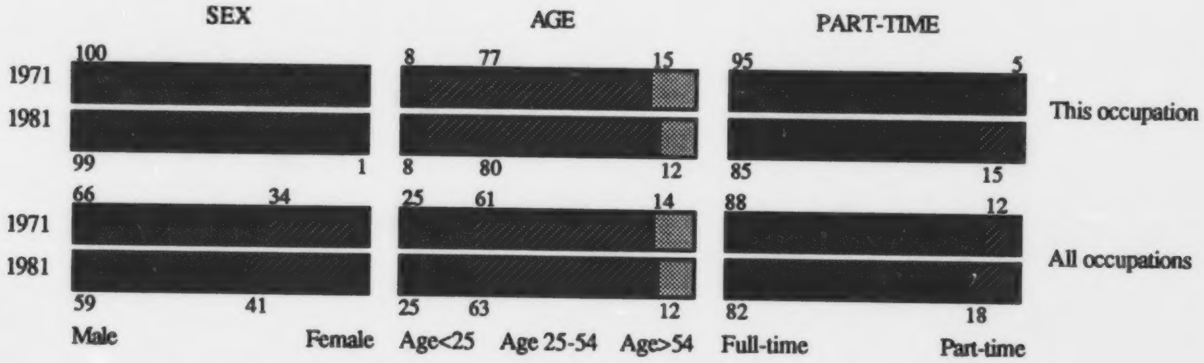
Employment Trends and Projections

	Employment			Average Annual Growth Rate (%)		
	1981	1986	1995	1971-81	1981-86	1987-95
This Occupation	2.700	2.800	3.400	3.7	0.8	2.5
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation		All Occupations
	1987-95	% of 1987 Jobs	% of 1987 Jobs
Net New Job Openings	600	21.6	11.1
Replacement Openings	1.300	45.4	49.2
Total Job Openings	1.900	67.0	60.3

CENSUS – 1971 and 1981 (%)



1981 CENSUS – Main Industries of Employment (%)

Fishing (75) - Fishing (75)	Manufacturing (24) - Food + Beverages (24)

Geographic Distribution of Employment – 1981 (%)

Newfoundland	17.3	Ontario	3.3
Prince Edward Island	8.1	Manitoba	0.4
Nova Scotia	31.5	Saskatchewan	0.2
New Brunswick	12.6	Alberta	0.4
Quebec	4.5	British Columbia	21.5

For further information, contact:

Fisheries Council of Canada
Suite 505
77 Metcalfe Street
Ottawa, Ontario K1P 5L6
(613) 238-7751

Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
- College (1981-86)	0	0.0
- University (1981-86)	3	100.0
Trade Vocational Schools (1983/84 only)	0	0.0

Captains and Other Officers, Fishing Vessels

7311

Job Environment

Captains, boatswains, mates and skippers are concerned with commanding fishing vessels and crews and co-ordinating workers engaged in processing fish and other aquatic life. Vessel and equipment maintenance is also a part of their regimen. The work is outdoors, exposing officers to various weather conditions. It requires physical stamina and frequently involves long and irregular hours.

Educational Background and Skills

To qualify for employment in this occupation, individuals must have Grade 10 education and be at least 19 years old. They also must be certified according to the type of ship and waters they navigate, a qualification that requires between five and eight years of on-the-job experience. Preferably, officers have taken a program in fisheries techniques and technology from a community college or school of fisheries. The ability to work with a compass and navigation charts and tables is essential.

Nature of Supply

Labour force re-entrants and entrants from other occupations are the major sources of supply. Others include immigrants and graduates from the secondary and post-secondary education systems.

Most fishing vessel officers are men and most work in Nova Scotia, British Columbia and Newfoundland. The average age (40) and the age structure of this occupation have stayed fairly stable since 1971. A typical career lasts, on average, 25 years, with entry normally occurring between the ages of 30 and 34.

Market Conditions and Job Prospects

The employment outlook for these occupations calls for above-average growth over the next eight years, based on employment patterns in the fishing and manufacturing sectors. This forecast improves upon trends during the 1970s and early 1980s, when employment grew at an about-average pace.

Labour market conditions for this occupational group were more favourable than in other occupations up to 1986, although the 1981-1982 recession slowed employment growth. Up to 1995, approximately 1,900 persons will be needed to fill new jobs and to replace personnel who leave because of death, retirement or to return to the household or the educational system.

This group is highly vulnerable to changes in economic conditions. The price of fish, regulation of fish supplies, territorial fishing rights, quotas and the value of the Canadian dollar greatly affect employment opportunities. The trend towards the use of factory freezer trawlers in offshore activity, while slow in developing, may also limit vessel captain and officer positions. Employment in this occupational group is seasonal; most of the fishing activities occur in the spring and summer.

Earnings

In Labour Canada's *Wages and Working Conditions in Canada*, (1985), the estimated average annual earnings for various categories of workers in the water transport industry are reported as follows:

Boatswain	$24,128
First Officer — Mate	35,360
Second Officer — Mate	34,736
Marine-Engineer Officer (Second Officer)	32,136
Third Officer — Mate	23,452

According to the Federal Pay Research Bureau, the annual salaries of ship's officers ranged from $38,704 to $50,089 in 1986.

Log Inspecting, Grading, Scaling and Related Occupations 7516

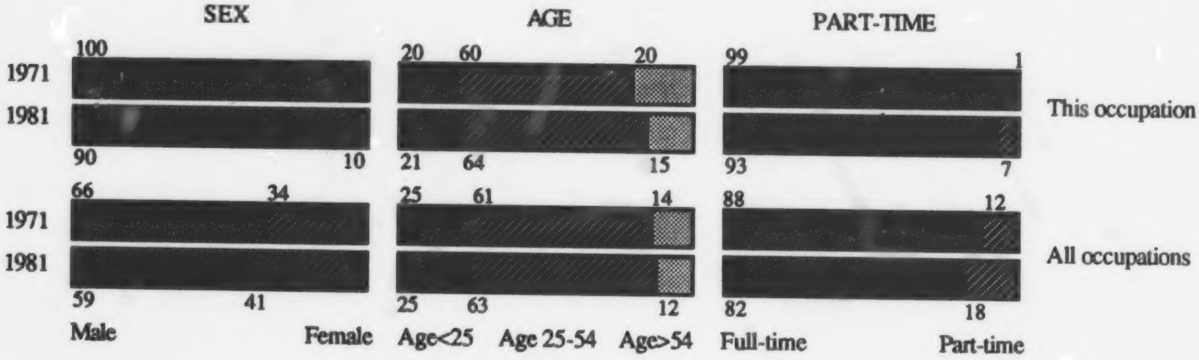
Employment Trends and Projections

	Employment 1981	Employment 1986	Employment 1995	Average Annual Growth Rate (%) 1971-81	Average Annual Growth Rate (%) 1981-86	Average Annual Growth Rate (%) 1987-95
This Occupation	2,400	2,100	2,300	1.5	-2.1	0.4
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation 1987-95	This Occupation % of 1987 Jobs	All Occupations % of 1987 Jobs
Net New Job Openings	100	3.7	11.1
Replacement Openings	1,300	60.2	49.2
Total Job Openings	1,400	63.9	60.3

CENSUS – 1971 and 1981 (%)



1981 CENSUS – Main Industries of Employment (%)

Forestry (61)
- Forestry (61)

Manufacturing (28)
- Wood (17)
- Pulp+Paper (10)

Public Administration (6)
- Provincial Admin (5)

Geographic Distribution of Employment – 1981 (%)

Newfoundland	1.0	Ontario	19.8
Prince Edward Island		Manitoba	0.4
Nova Scotia	2.1	Saskatchewan	0.8
New Brunswick	7.3	Alberta	1.2
Quebec	22.5	British Columbia	43.8

Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
- College (1981-86)	16	72.7
- University (1981-86)	6	27.3
Trade Vocational Schools (1983/84 only)	0	0.0

Log Inspecting, Grading, Scaling and Related Occupations 7516

Job Environment

This occupational group includes log graders, timber scalers and tree scalers. Their activities include appraising forest areas for timber yield, estimating the usable timber in logs, recording data and preparing topographic maps for management planning. Sometimes they grade uncut timber to determine its use as either pulp and paper, lumber or plywood veneer. The work is outdoors in forests and logging camps and involves the use of measuring and surveying equipment.

Educational Background and Skills

Employment in this occupation usually requires the completion of a community college or university program in forestry or forestry technology. Some related experience is an asset. Logging operations inspectors must obtain a provincial licence in order to work. An additional requirement is usually a practical training period of several months under the supervision of an experienced inspector.

Nature of Supply

A main channel of entry into this occupation is the post-secondary education system. Labour force re-entrants and immigrants also augment the supply. The flow of people into this occupation from other related ones should marginally exceed exits to other occupations. This suggests that many move up to these occupations from related lumbering positions.

Women are outnumbered by men in these occupations, although their numbers have been increasing. The majority of lumber graders work in British Columbia, Quebec and Ontario. New Brunswick does not have as many graders as Quebec and Ontario, although it has the second highest concentration per capita, next to British Columbia.

The average age (37) and the age structure of this occupation have remained relatively stable since 1971. A typical career spans 30 years, with entrance occurring between the ages of 20 and 24.

Market Conditions and Job Prospects

The employment outlook for this occupational group calls for below-average growth over the next eight years, based on the employment outlook for the forestry and manufacturing sectors. This would parallel the situation in the 1970s and early 1980s, when employment grew slower than average.

Labour market conditions for these occupations have not been very favourable in the past few years. There has been a significant absence of jobs and the unemployment insurance claimant rate has been well above the average for all occupations. About 1,100 to 1,400 log inspectors will be needed up to 1995, most of whom will be replacing current personnel.

These occupations are dependent on general business conditions and on exports to foreign markets. Employment is seasonal, most activity occurring in the summer and fall. As scaling becomes computerized, some occupations in this group, particularly scalers' helpers, are becoming obsolete.

Earnings

Wages in this occupational group range from $15.00 to $19.00 per hour, depending on qualifications and type of job. Labour Canada reported that 1985 hourly wages for log scalers employed in saw mills and planing mills ranged from $7.58 to $15.87; the average hourly rate was $11.15. Lumber graders earned from $8.84 to $17.48 an hour, while $14.55 was the average hourly rate.

Rotary Well-Drilling and Related Occupations

7711

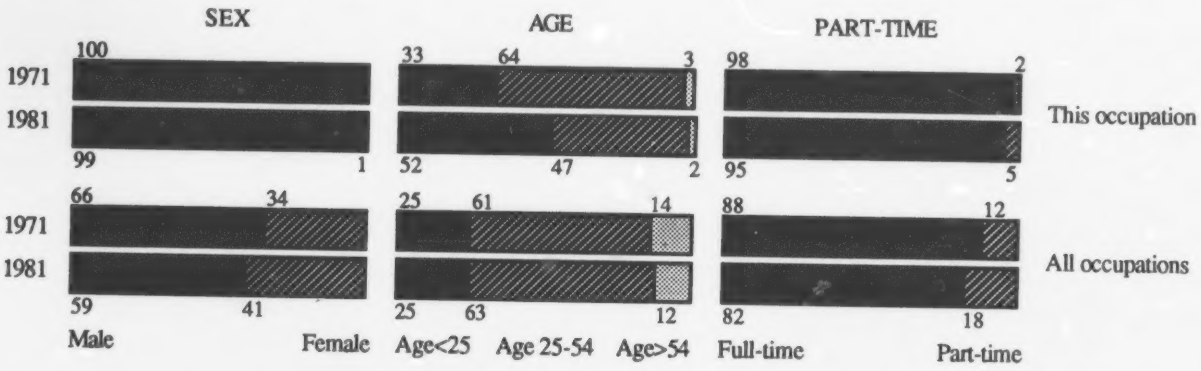
Employment Trends and Projections

	Employment 1981	 1986	 1995	Average Annual Growth Rate (%) 1971-81	 1981-86	 1987-95
This Occupation	7,600	6,700	8,100	10.9	−2.6	2.1
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation 1987-95	 % of 1987 Jobs	All Occupations % of 1987 Jobs
Net New Job Openings	1,200	18.1	11.1
Replacement Openings	1,900	27.6	49.2
Total Job Openings	3,100	45.7	60.3

CENSUS – 1971 and 1981 (%)



1981 CENSUS – Main Industries of Employment (%)

Mining (87)
- Serv Ind to Mining (67)
- Mining-Petroleum+Gas (20)

Construction (6)
- Construction (6)

Services (4)
- Business Services (4)

Geographic Distribution of Employment – 1981 (%)

Newfoundland	1.2	Ontario	5.2
Prince Edward Island	0.3	Manitoba	1.2
Nova Scotia	0.8	Saskatchewan	12.8
New Brunswick	0.6	Alberta	71.8
Quebec	0.6	British Columbia	5.6

Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
– College (1981-86)	7	17.1
– University (1981-86)	14	34.1
Trade Vocational Schools (1983/84 only)	20	48.8

Rotary Well-Drilling and Related Occupations

7711

Job Environment

Oil drillers, seismograph drillers, pipe pullers and service rig operators are concerned with sinking deep holes to explore for or to extract oil and natural gas. Their work involves assembling, erecting and operating drills, lowering and raising drill pipes, bits and instruments and inspecting, testing and servicing wells. This demands both physical stamina and mental alertness, as working conditions are sometimes difficult and hazardous. The job site is often in an isolated location.

Educational Background and Skills

While secondary school graduation is usually the minimum educational level necessary in this occupation, a community college program in resource drilling technology is an asset. Between five and 10 years of on-the-job training and experience in other positions on the drill crew are normally required before becoming a rotary driller.

Nature of Supply

Individuals moving in from other occupations as well as labour force re-entrants are the main sources of supply to this occupation. Immigration and, to a much lesser extent, the post-secondary education system also provide minor sources of supply.

Practically all rotary drillers are male. Between 1971 and 1981 the average age of drillers dropped from 33 to 27. The number of rotary drillers under 25 years of age increased, and the number aged 25 to 54 decreased. A career as a rotary driller lasts between 15 and 20 years, with entry normally occurring between the ages of 21 and 25. The majority of rotary drillers reside in Alberta and Saskatchewan.

Market Conditions and Job Prospects

Based on employment patterns of the services dependent on the mining and construction sectors, the employment outlook calls for above-average growth over the forecast period. This parallels the situation between 1971 and 1981, when employment grew faster than average. In the early 1980s the recession in the oil industry and fluctuations in the price of oil slowed this growth trend.

Labour market conditions in these occupations rank among the least favourable. This should change, however, because improvements in industry trends suggest an increase in the demand for drillers over the next eight years. Some 3,100 persons will be needed to fill new jobs and to replace departing workers.

This occupational group is highly vulnerable to changing economic conditions, fluctuating oil prices and commodity prices. Employment in the group is not, however, significantly affected by changes in technology. While most positions are full-time, there is a distinct seasonal pattern of employment, the high seasons being the summer, fall and winter, and the slow months occurring in the spring.

Earnings

Average Hourly Crew Wage Summary, 1986[1]

	Alberta	British Columbia	Saskatchewan	Manitoba	Northern Canada
Driller Wage Average	$16.26	$16.74	$16.12	$16.12	$17.15
Derrickhand Wage Average	13.81	14.23	13.70	13.78	14.58
Leasehand Wage Average	9.80	10.13	9.85	10.00	10.31

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[1] Canadian Association of Oilwell Drill Contractors, *CAODC Survey*, Calgary, Alberta, 1986.

Rock and Soil Drilling Occupations 7713

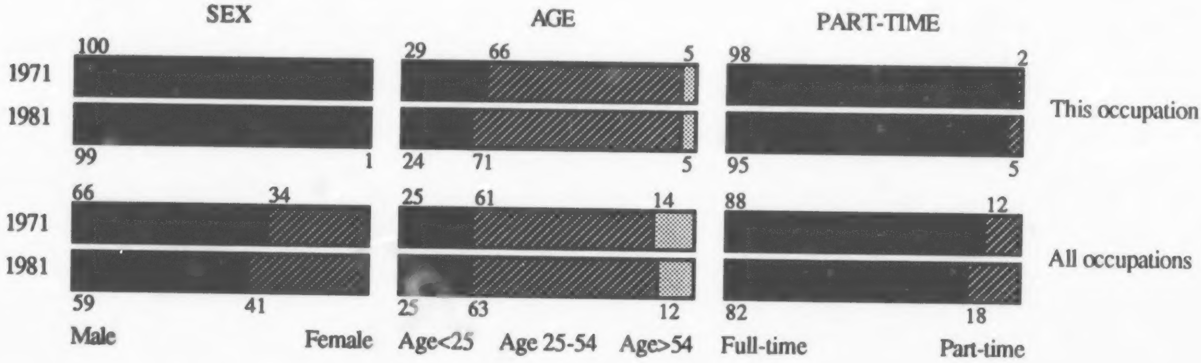
Employment Trends and Projections

	Employment			Average Annual Growth Rate (%)		
	1981	1986	1995	1971-81	1981-86	1987-95
This Occupation	10,400	9,000	10,500	-0.3	-3.0	1.7
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation 1987-95	This Occupation % of 1987 Jobs	All Occupations % of 1987 Jobs
Net New Job Openings	1,300	14.5	11.1
Replacement Openings	6,600	71.3	49.2
Total Job Openings	7,900	85.8	60.3

CENSUS - 1971 and 1981 (%)



1981 CENSUS - Main Industries of Employment (%)

Mining (72) - Mining-Metal Mining (47) - Serv Ind to Mining (18) - Mining-Non-Metal (4)	Construction (20) - Construction (20)	Manufacturing (3) - Non-Met Mineral Prod (1)

Geographic Distribution of Employment - 1981 (%)

Newfoundland	2.9	Ontario	38.8
Prince Edward Island		Manitoba	6.6
Nova Scotia	2.2	Saskatchewan	2.8
New Brunswick	2.7	Alberta	7.8
Quebec	20.1	British Columbia	15.0

Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
- College (1981-86)	0	0.0
- University (1981-86)	7	15.2
Trade Vocational Schools (1983/84 only)	39	84.8

Rock and Soil Drilling Occupations

7713

Job Environment

This occupational group includes air-drill operators, blasthole drillers, auger operators and coal drillers. Their work involves using explosives in underground and surface mining, in quarries and on construction projects; operating drills; breaking and separating rock; and installing air and water pipelines leading to the working surface. The physical demands of the work are heavy. Working conditions are underground, where temperatures are generally agreeable. Although workers are exposed to humidity and odours, safety, health and sanitary conditions are rigidly monitored and hazards are known, recognized and controlled.

Educational Background and Skills

There is no minimum educational level required for employment in this occupation, although workers must be at least 18 years old. Most individuals acquire the necessary skills to be a driller by accumulating on-the-job training and experience under the supervision of an experienced driller or miner. Formal training in drilling and drilling technology may reduce the required period of on-the-job training.

Nature of Supp

The main sources of labour supply for this occupation are the secondary school system, labour force re-entrants and individuals who change occupations to become drillers. Other minor sources include military personnel and immigrants.

The average age in this occupation (33) has remained stable since 1971. Virtually all drillers are men and are concentrated in Ontario, Quebec and British Columbia.

Market Conditions and Job Prospects

The employment outlook for these occupations calls for above-average growth over the forecast period based on growth prospects for the metal-mining and construction sectors. This forecast differs from the situation in the 1970s and early 1980s, when employment in the Canadian mining industry fell significantly, because of mine closures and layoffs resulting from a deteriorating market situation and increased foreign competition.

Approximately 7,900 drillers will be needed in the next eight years to fill new jobs and to replace personnel who leave because of death, retirement or to return to the household or educational system.

Labour market conditions have not been as favourable in this occupation as in the labour market at large in the last few years. The unemployment rate has been well above average. However, industry trends indicate that some recovery is underway in the mining industry, which will result in increasing drilling opportunities during the forecast period.

Employment among drillers is moderately susceptible to changes in business conditions. Fluctuating commodity prices and varying patterns in metal consumption affect employment opportunities. Seasonal forces, however, have little influence.

New mining methods, the development and adoption of new drilling equipment, computer-aided mining machinery, underground computer terminals, and overall increased computerization will result in a demand for more highly skilled workers in this occupational group.

Blasting Occupations

7715

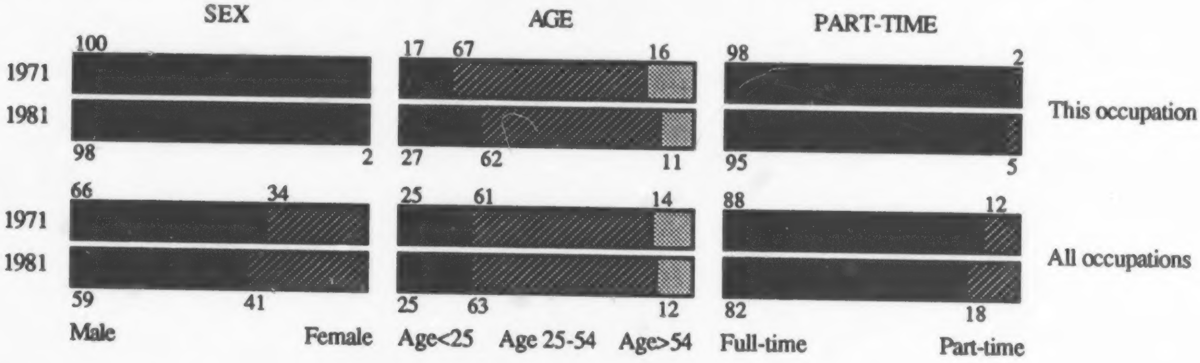
Employment Trends and Projections

	Employment			Average Annual Growth Rate (%)		
	1981	1986	1995	1971-81	1981-86	1987-95
This Occupation	2,100	1,800	2,100	1.7	-2.6	1.5
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation		All Occupations
	1987-95	% of 1987 Jobs	% of 1987 Jobs
Net New Job Openings	200	13.0	11.1
Replacement Openings	1,300	69.6	49.2
Total Job Openings	1,500	82.5	60.3

CENSUS – 1971 and 1981 (%)



1981 CENSUS – Main Industries of Employment (%)

Mining (56)
- Mining-Metal Mining (31)
- Mining-Non-Metal (8)
- Serv Inc to Mining (8)

Construction (26)
- Construction (26)

Forestry (7)
- Forestry (7)

Geographic Distribution of Employment – 1981 (%)

Newfoundland	3.6	Ontario	18.6
Prince Edward Island		Manitoba	5.2
Nova Scotia	5.4	Saskatchewan	2.3
New Brunswick	3.4	Alberta	11.1
Quebec	22.7	British Columbia	24.7

Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
- College (1981-86)	0	0.0
- University (1981-86)	0	0.0
Trade Vocational Schools (1983/84 only)	0	0.0

Blasting Occupations

7715

Job Environment

Persons in this group include oil-well shooters, dynamiters, chute blasters and seismograph shooters, who are concerned with detonating explosives to demolish structures on construction sites and with mineral, oil and natural gas exploration. This type of work is usually performed outdoors. While exposure to gas fumes and noxious vapours is unavoidable, proper use of safety equipment minimizes any risks.

Educational Background and Skills

While there are no specific educational requirements for employment in these occupations, individuals must be at least 18 years old. Most blasters acquire the necessary skills through on-the-job training and experience. Formal training may reduce training on the job, so secondary school graduation is an asset. Dynamiters must have a knowledge of safety regulations to handle explosive materials and use blasting equipment. In addition to having good hearing and eyesight, reasonable strength, good manual dexterity and eye-hand-foot co-ordination, workers must also be emotionally stable, have the ability to work co-operatively in a team, be persistent and show initiative.

Nature of Supply

Major sources of new supply for this occupation include individuals who change occupations to become blasters, labour force re-entrants and individuals from the formal education system. The military and immigration also contribute to the supply.

Most blasters are men and work in British Columbia, Ontario and Quebec, where mining is concentrated. The average age of these workers dropped from 40 years in 1971 to 35 years in 1981. Over the same period, there was a significant increase in the number of blasters under the age of 25 and a corresponding decrease in the number over the age of 54. A typical career as a blaster spans between 20 and 25 years, with entrance normally occurring between the ages of 20 and 24.

Market Conditions and Job Prospects

Based on employment patterns in the mining and construction sectors, the employment outlook for these occupations calls for average growth over the forecast period. This differs from trends during the 1970s and early 1980s, when employment increased slowly or declined. Total job openings up to 1995 will be about 1,500, with most of them resulting from the need to replace existing personnel who leave because of death, retirement or to return to the household or educational system.

This occupational group is vulnerable to changes affecting the mining industry. Since the 1981-1982 recession, labour market conditions have not been favourable. They are expected to improve, however, and employment is to become more available. Most of the job opportunities are in the spring, summer and fall, while there is a slight slowdown during the winter months.

Nineteen out of 20 jobs in these occupations are full-time in nature. Rotating shift work is the usual work schedule.

Earnings

Employment and Immigration Canada reports that in 1986, blasters and dynamiters in the construction industry earned an hourly rate ranging from $14.58 to $15.30.

Moulding, Coremaking and Metal Casting Occupations 8137

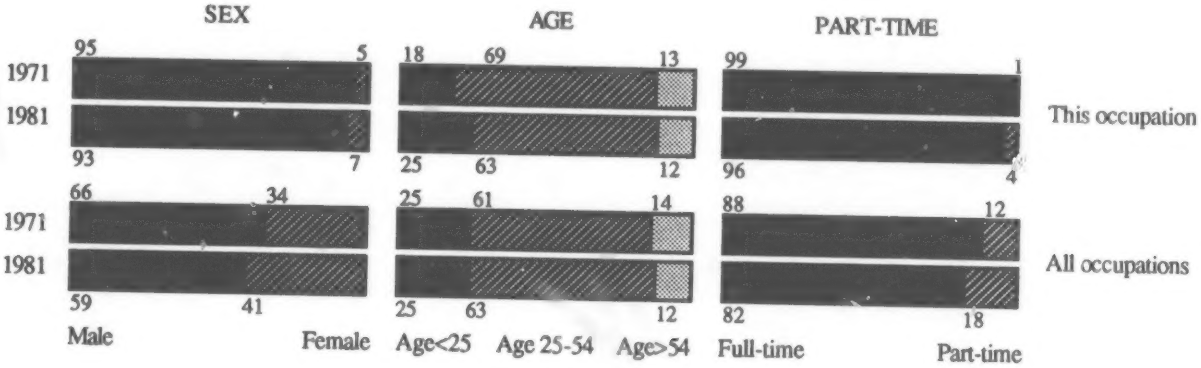
Employment Trends and Projections

	Employment			Average Annual Growth Rate (%)		
	1981	1986	1995	1971-81	1981-86	1987-95
This Occupation	8,600	7,100	8,100	0.8	-3.8	1.6
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation		All Occupations
	1987-95	% of 1987 Jobs	% of 1987 Jobs
Net New Job Openings	1,000	13.8	11.1
Replacement Openings	5,000	69.8	49.2
Total Job Openings	6,000	83.6	60.3

CENSUS – 1971 and 1981 (%)



1981 CENSUS – Main Industries of Employment (%)

Manufacturing (96)	Mining (1)
- Primary Metals (63)	- Mining-Metal Mining (1)
- Metal Fabricating (15)	
- Machinery (6)	

Geographic Distribution of Employment – 1981 (%)

Newfoundland	0.2	Ontario	57.7
Prince Edward Island	0.1	Manitoba	3.9
Nova Scotia	1.7	Saskatchewan	1.0
New Brunswick	0.6	Alberta	3.1
Quebec	25.8	British Columbia	6.0

Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
- College (1981-86)	21	70.0
- University (1981-86)	9	30.0
Trade Vocational Schools (1983/84 only)	0	0.0

For further information, contact:

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7th Floor
234 Eglinton Avenue East
Toronto, Ontario M4P 1K7
(416) 487-1571

Independent Canadian Steelworkers Union
331 Major Street
Welland, Ontario L3B 3T7
(416) 732-3644

Moulding, Coremaking and Metal Casting Occupations

8137

Job Environment

Occupations in this group include bench moulders, die casters, floor moulders and metal casters. Before metal can be cast or moulded, a mould must first be constructed which will give the molten metal its desired shape. The most traditional practice calls for a hand moulder to build a mould around a model called a "pattern" using a mixture of specially treated sand, clay, water and various chemicals. A hand moulder presses and compacts the mixture about the pattern with a number of hand tools. However, the metalcasting process has grown considerably in complexity and sophistication. "Wax-loss" and "foam-loss" are among a number of techniques allowing the production of highly complex shapes. Modern technology also has changed the nature of the job, allowing the fast and precise construction of moulds through the use of modern, electronically-controlled moulding machines.

Moulders today work in modern, clean, well-lighted and well-ventilated foundry settings. Safety equipment and protective clothing are usually required on the shop floor. Changing technology is beginning to demand that moulders be able to set up, operate and maintain modern machinery and be involved in the inspection process in addition to traditional skills.

Educational Background and Skills

A minimum of grade 10 education is the normal requirement for this occupation, but moulders generally acquire and develop their skills on the job. Workers in these occupations tend to enjoy working with objects and machinery, pay attention to detail and they enjoy seeing the physical results of their labours. The physical requirements call for average strength, some tolerance for periods of standing, and good hand and eye co-ordination.

Nature of Supply

Besides high school, another source of supply has been the industrial engineering field of study at the community college level.

Moulders may advance to supervisors, casting inspectors or group leaders. With some additional education and experience, more capable moulders may become managers or lab technicians.

Market Conditions and Job Prospects

Technological advances have prevented this occupational group from achieving rapid expansion during the 1970s. The introduction of automated processes and the use of modern materials leading to longer lasting moulds have lessened the requirement for labour. Despite the limiting effects of technology, the growing number of applications for casting will mean better-than-average growth for moulders over the next eight years. Because growth in the supply of labour has not kept full pace, current market conditions are slightly better than average.

Most of the work in this occupation is full-time and stable throughout the year. However, employment may be somewhat sensitive to changes in business conditions especially as they affect the manufacture of metal products.

Earnings

Moulder and patternmaker earnings vary according to experience, industry, and the complexity of the mould-making process. The average hourly rate in 1985 for metal patternmakers was $13.54 whereas wood patternmakers averaged $13.19 per hour. The average hourly rate for sand moulders was $14.22. The National Graduate Survey reported that 1984 annual earnings averaged $20,500 for those 1982 community college graduates working in this occupational area two years after graduation.

Tool and Die Making Occupations

8311

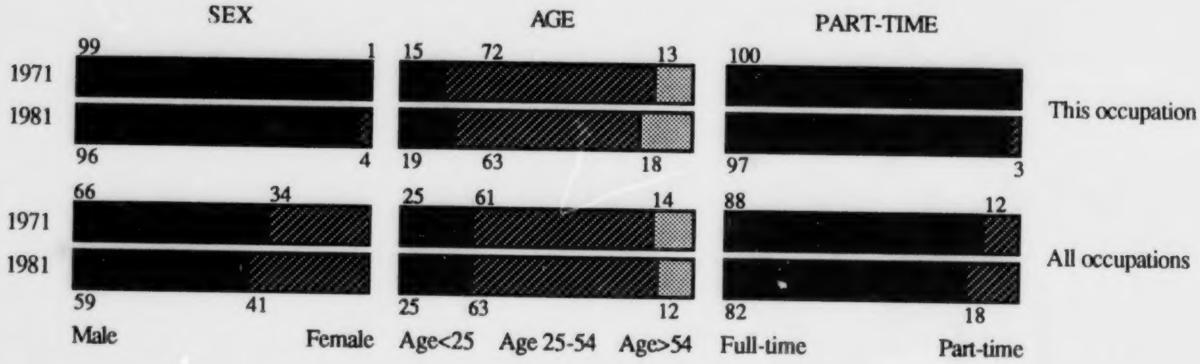
Employment Trends and Projections

	Employment 1981	Employment 1986	Employment 1995	Average Annual Growth Rate (%) 1971-81	Average Annual Growth Rate (%) 1981-86	Average Annual Growth Rate (%) 1987-95
This Occupation	12,400	12,100	14,100	2.3	−0.6	1.7
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation 1987-95	This Occupation % of 1987 Jobs	All Occupations % of 1987 Jobs
Net New Job Openings	1,800	14.8	11.1
Replacement Openings	8,000	65.1	49.2
Total Job Openings	9,800	80.0	60.3

CENSUS – 1971 and 1981 (%)



1981 CENSUS – Main Industries of Employment (%)

- Manufacturing (92)
  - Metal Fabricating (42)
  - Motor Veh + Trls + Parts (17)
  - Machinery (11)
- Trade (3)
  - Wholesale Trade (3)
- Services (3)
  - Misc Services (2)

Geographic Distribution of Employment – 1981 (%)

Newfoundland	0.1	Ontario	81.9
Prince Edward Island		Manitoba	1.4
Nova Scotia	0.3	Saskatchewan	0.2
New Brunswick	0.2	Alberta	1.7
Quebec	11.3	British Columbia	2.9

For further information, contact:

Canadian Tooling Manufacturing Association
P.O. Box 1931
London, Ontario N6A 5J4
(519) 471-7489

Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
– College (1981-86)	33	22.8
– University (1981-86)	19	13.1
Trade Vocational Schools (1983/84 only)	93	64.1

Tool and Die Making Occupations

8311

Job Environment

A tool and die maker makes and repairs cutting tools, dies and fixtures subsequently used to cut, form or process materials, usually metal. From technical drawings and specifications they calculate required dimensions and tolerances, set up and operate metal-working machinery, machine the tools to close tolerances, apply heat treatments, assemble and test the tool or die, and verify the conformance of the finished product to specifications. In many shops, a tool and die maker may specialize in one or more of the above activities. More and more, they are required to operate numerically operated or computer programmable machinery.

The work is indoors and involves some exposure to noise and hazards requiring the use of safety equipment. Physical activities may include lifting and carrying of up to 23 kg, and periods of standing and handling material and machinery. A five-day work week of 40 hours is normal, and shift work may be required in this occupation.

Educational Background and Skills

Tool and die making apprenticeship programs are offered in Ontario, Manitoba and British Columbia. The course is for four years (in British Columbia, it is for five years) and Grade 10 is required, although most employers insist on Grade 12. The trade may be entered by obtaining training as a machinist and then acquiring broad machining experience and upgrading.

Nature of Supply

Most persons entering this occupational area from the formal educational system come from trade and vocational schools or from community colleges after taking courses in machinery or primary technologies.

Immigration, with specific intent to enter tool and die making, and temporary work authorizations still constitute an important source of occupational supply.

Although most tool and die makers are men, there has been a growing proportion of women in the trade labour force in recent years.

With experience and the appropriate aptitudes, a tool-and-die maker may move into a supervisory position. Advancement opportunities beyond this level are available with additional formal training or education.

Market Conditions and Job Prospects

Below-average employment growth for tool and die makers during the 1970s belied the fact that shortages of labour in this skill group were frequent and persistent. In 1982 and 1983, employment suffered when the manufacturing sector, which is the main employer of tool and die makers, was hard hit by an economic recession. In normal economic times, market conditions for these occupations tend to be better than average, as is the case at present. Projected employment growth, based on expectations for the manufacturing sector, is superior to expected overall employment growth in the labour market. About 9,800 hiring opportunities are anticipated for this occupational group over the next eight years, of which 1,800 will be related to new jobs and 8,000 to replacement openings.

Nearly all employment of tool and die makers is in manufacturing, mainly in metal fabricating. Nearly all jobs in tool and die making are full time; tool and die makers can expect steady employment throughout the year. A preponderance of tool and die making employment is in Ontario (82%) with a secondary concentration in Quebec (11%).

Although changing technology is requiring some new skills, the use of computerized equipment has thus far had only a moderate effect on employment.

Earnings

A fully qualified tool and die maker can earn between $13.00 and $20.00 per hour. Apprentices earn 60% of these rates to start, but their wages gradually increase during their apprenticeship, as they become more qualified and gain more experience. Hourly rates of pay in Vancouver ranged from $16.39 to $18.62 in 1987 for unionized labour and from $10.00 to $16.50 for non-unionized labour. In Ontario, average hourly rates ranged from $14.16 to $18.10, based on a survey by the Canadian Tooling Manufacturers' Association.

Machinist and Machine Tool Setting-Up Occupations

8313

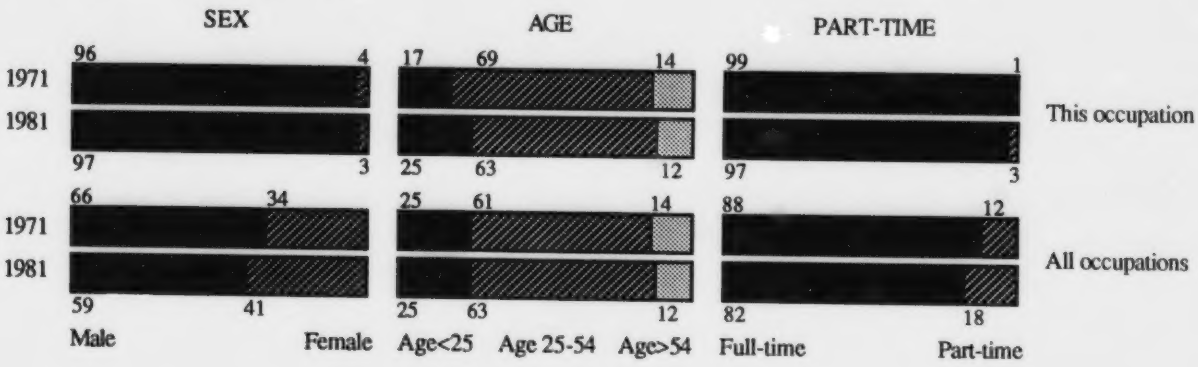
Employment Trends and Projections

	Employment			Average Annual Growth Rate (%)		
	1981	1986	1995	1971-81	1981-86	1987-95
This Occupation	46,200	41,400	46,800	2.4	−2.1	1.3
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation		All Occupations
	1987-95	% of 1987 Jobs	% of 1987 Jobs
Net New Job Openings	4,600	10.8	11.1
Replacement Openings	23,100	54.8	49.2
Total Job Openings	27,700	65.7	60.3

CENSUS – 1971 and 1981 (%)



1981 CENSUS – Main Industries of Employment (%)

Manufacturing (80)
- Metal Fabricating (27)
- Machinery (15)
- Aircraft + Parts (6)

Trans + Stor + Comm + Util (7)
- Rail Transport (5)

Trade (5)
- Wholesale Trade (4)

Geographic Distribution of Employment – 1981 (%)

Newfoundland	0.8	Ontario	46.4
Prince Edward Island	0.1	Manitoba	4.5
Nova Scotia	1.7	Saskatchewan	1.3
New Brunswick	1.7	Alberta	6.1
Quebec	29.4	British Columbia	8.0

Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
– College (1981-86)	66	14.8
– University (1981-86)	0	0.0
Trade Vocational Schools (1983/84 only)	381	85.2

Machinist and Machine Tool Setting-Up Occupations

8313

Job Environment

This category includes aircraft machinists, cam makers, gear finishers, gear shapers, jig borers, lathe machinists, patternmakers and radial-drill-press operators. Machinists make or repair metal tools, machines or parts by using metal working equipment such as lathes, boring machines, milling machines and cutting machines. They must be able to read and understand part specifications, calculate dimensions and tolerances, do layout and mark out the piece for machining. Highly skilled, a general machinist is competent with a variety of metal working machines. There are also machinists who are specialized on certain types of machines or with particular materials.

A machinist works indoors, usually in areas that are noisy, dirty and potentially hazardous. Frequent lifting and carrying of objects is required, as are prolonged periods of standing. A five-day work week of 35 to 40 hours is standard. Shift work is not unusual.

Educational Background and Skills

Apprenticeship is required in all provinces except Quebec, where professional training courses through adult education is the normal route to becoming a machinist. The normal apprenticeship period in machining is four years. The entrance requirement is Grade 9 in New Brunswick, Manitoba and Alberta and Grade 10 in all other provinces.

Nature of Supply

A significant portion of new occupational entrants in machining are immigrants who came to Canada specifically to become machinists.

Between 1971 and 1981 the number of female machinists declined to 1,300 from over 1,500, despite encouragement to enter the trade.

There is a moderate tendency for machinists to leave their trade before normal retirement age. Between 1987 and 1995, considerably more job openings are expected from replacement needs than from growth in overall employment.

Market Conditions and Job Prospects

Employment in the machinist and machine tool setting-up occupational category suffered recession-related reversals in 1982 and 1983, but growth has been positive since, with future growth projected to be roughly equal to the rate expected for the total labour market. An average of 570 new jobs a year plus about 3,000 replacement hirings are expected between 1987 and 1995.

Nearly all machinists work in full-time jobs, with three quarters working in Ontario and Quebec. Four of five machinists work in manufacturing industries, and overall employment in machinist and machine tool setting-up can be affected by changing economic conditions, especially as they affect manufacturing industries. During times of economic growth, sporadic shortages of machinists can occur.

The increasing use of numerically-controlled and microprocessor-controlled machinery has changed the machinist's skill requirements to include the ability to set up and operate this equipment. The total employment impact of these innovations has been moderate, although negative, to date.

Earnings

In 1985, the Canadian hourly wage rates of general machinists ranged from $10.00 to $17.07. The average was $13.28. Maintenance machinists' hourly rates ranged from $9.94 to $14.76, with an average of $12.22. A survey showed these 1986 hourly rates for journeymen general machinists:

Vancouver	$12.76 – $19.72 (unionized)
Edmonton	$13.80 – 16.20 (all)
Montreal	$10.84 – 16.80 (all)

The National Graduate Survey reported average annual earnings of $18,200 in 1984 for 1982 community college graduates working in this occupation two years after graduation.

Inspecting, Testing, Grading and Sampling Occupations: Metal Machining

8316

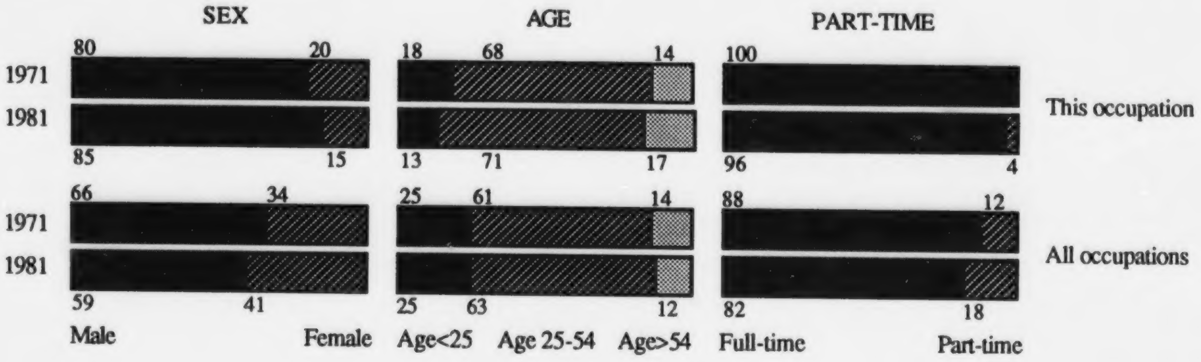
Employment Trends and Projections

	Employment			Average Annual Growth Rate (%)		
	1981	1986	1995	1971-81	1981-86	1987-95
This Occupation	2,100	2,300	2,800	0.1	1.3	2.4
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation		All Occupations
	1987-95	% of 1987 Jobs	% of 1987 Jobs
Net New Job Openings	500	21.0	11.1
Replacement Openings	1,700	71.5	49.2
Total Job Openings	2,100	92.5	60.3

CENSUS – 1971 and 1981 (%)



1981 CENSUS – Main Industries of Employment (%)

Manufacturing (95)
- Motor Veh+Trls+Parts (45)
- Metal Fabricating (22)
- Machinery (13)

Trade (2)
- Wholesale Trade (1)

Geographic Distribution of Employment – 1981 (%)

Newfoundland	0.5	Ontario	79.3
Prince Edward Island		Manitoba	1.9
Nova Scotia		Saskatchewan	1.0
New Brunswick	1.2	Alberta	1.7
Quebec	13.3	British Columbia	1.4

Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
- College (1981-86)	0	0.0
- University (1981-86)	4	100.0
Trade Vocational Schools (1983/84 only)	0	0.0

Inspecting, Testing, Grading and Sampling Occupations: Metal Machining

8316

Job Environment

This classification includes auto parts inspectors, axle inspectors, tool and die inspectors, gear testers and machine shop inspectors. The job variety reflects either the nature of the product being made or the type of operation performed on the product. Metal machinery inspectors test and inspect machined products and, often, the machinery or tools and dies that are used to form these products. They must be familiar with various testing and measuring techniques, tools and instruments, which include micrometers, calipers, plug gauges, gear-measuring wires and vernier gauges.

The scope of duties performed by inspectors in many organizations is gradually diminishing over time because of increased use of automated sensing and measuring devices and machinery with self-diagnostic features. In some industries, (automotive, for example) work responsibilities are being reorganized such that production workers will also be assigned various inspection and testing duties. This type of work reorganization tends to reduce the requirements for full-time inspectors. These changes are occurring at various rates in different industries; but overall, the impact will be felt over a long period of time and will not eliminate the need for metal machining inspectors altogether.

Metal machining inspectors are found almost exclusively in a manufacturing context. Larger firms and companies dealing in volume production are more likely to employ inspectors than smaller firms or firms dealing in customer work. The work is indoors and requires only moderate physical activity. A 35-to-40 hour work week is usual; shift work is not uncommon.

Educational Background and Skills

An ability to read and interpret technical drawings and specifications, visual accuracy and attention to detail are requisite skills for this occupational group. There are no formal educational requirements for these occupations, although a Grade 10 level of education is typically required by employers.

Nature of Supply

Entry into this occupational area is normally through promotion from within, after the employee has demonstrated a thorough knowledge of the products and processes. Career advancement opportunities from this occupational area are limited without additional education or training. Testing and inspection requiring sophisticated equipment and techniques are more often carried out by technicians, technologists, designers or even engineers.

The average age of this group is about 40 years, which is slightly older than in the labour force overall and perhaps reflective of the experience factor mentioned above. Employment is predominately male.

Market Conditions and Job Prospects

Employment growth in this occupational group during the 1970s was extremely slow. Based on the outlook for the motor vehicle and metal fabricating industries, current projections call for faster-than-average employment growth; this is probably optimistic, since technological and organizational changes will likely continue to limit employment growth.

To the extent that changing economic conditions affect the manufacturing sector, where 19 out of 20 metal machining inspection jobs are found, these occupations may be affected. Seasonal forces, on the other hand, have little impact on the level of employment of this occupational group. Nearly all metal machinery inspection work, most of which is located in Ontario, is full-time in nature.

Earnings

The wages of inspectors and testers depend on the type of job, location and the industry in which they work. In 1985, as an overall average, they earned $12.07 per hour; hourly rates ranged from $11.48 to $13.86 for unionized labour and $9.90 to $14.84 for non-unionized labour.

Sheet Metal Workers

8333

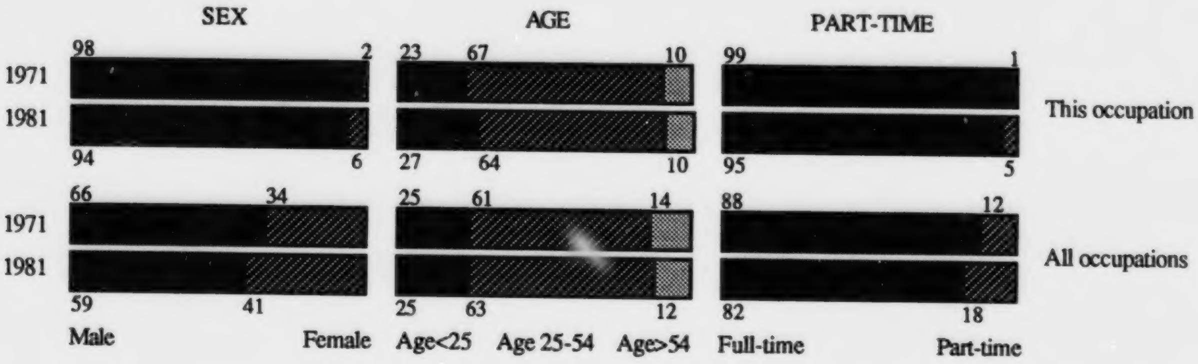
Employment Trends and Projections

	Employment 1981	Employment 1986	Employment 1995	Average Annual Growth Rate (%) 1971-81	Average Annual Growth Rate (%) 1981-86	Average Annual Growth Rate (%) 1987-95
This Occupation	25,100	23,500	28,300	3.3	-1.4	2.0
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation 1987-95	This Occupation % of 1987 Jobs	All Occupations % of 1987 Jobs
Net New Job Openings	4,200	17.3	11.1
Replacement Openings	10,800	44.8	49.2
Total Job Openings	15,000	62.1	60.3

CENSUS – 1971 and 1981 (%)



1981 CENSUS – Main Industries of Employment (%)

Manufacturing (58)
- Metal Fabricating (28)
- Motor Veh + Trls + Parts (7)
- Machinery (6)

Construction (33)
- Construction (33)

Trade (3)
- Wholesale Trade (3)

Geographic Distribution of Employment – 1981 (%)

Newfoundland	0.6	Ontario	49.5
Prince Edward Island	0.1	Manitoba	4.8
Nova Scotia	1.4	Saskatchewan	2.2
New Brunswick	1.1	Alberta	12.4
Quebec	18.8	British Columbia	9.2

For further information, contact:

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85 Albert St., 2nd Floor
Ottawa, Ontario K1P 6A4
(613) 236-9455

Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
- College (1981-86)	6	6.1
- University (1981-86)	0	0.0
Trade Vocational Schools (1983/84 only)	92	93.9

Sheet Metal Workers

8333

Job Environment

This occupational group covers workers who fabricate products made of sheet metal. Most sheet metal workers are employed in the manufacturing industries – metal fabricating, motor vehicles, etc. Roughly one-third are employed in construction where they make duct work, metal walls and siding, kitchen assemblies and roof drainage systems. Many sheet metal workers are employed in shops where sheet metal assemblies are made before installation in buildings.

Sheet metal workers perform diverse activities, which include draughting patterns, measuring and laying out templates, cutting, shaping and fastening sheet metal (such as copper, steel and aluminum), and using hand tools and such machines as brakes, shears and rollers.

Sheet metal workers who install on the construction site must often work in cramped and awkward positions and, at times, work at heights. As a rule, manufacturing or shop work is done indoors, as is most construction installation activity.

Sheet metal tradesmen most often work for specialty contractors and enjoy regular hours. Some are members of construction unions and work on a project-by-project basis, with work being allocated by a union hiring hall.

Educational Background and Skills

Prospective sheet metal workers should possess a mechanical aptitude and generally good health.

Apprenticeship is the accepted means of entry into the sheet metal trade. Apprenticeship programs in sheet metal, ranging from three to five years, are offered in all provinces (three years in Quebec, five in Ontario, four elsewhere). Minimum educational requirements are Grade 9 in Newfoundland and Grade 10 in all other provinces except Quebec and Alberta, which state no minimum requirement. Training complying with the Interprovincial Standards Programme is recognized in all provinces. Sheet metal tradesman's qualifications are compulsory in Quebec, Ontario, Saskatchewan, Alberta and British Columbia.

Nature of Supply

Immigration with specific intent to enter the sheet metal trade has been only a minor source of new occupational supply in recent years.

The number of women practising the sheet metal trade has grown significantly during past years. Women are encouraged to enter the trade.

Sheet metal workers tend to remain in their trade until retirement.

Market Conditions and Job Prospects

Employment of sheet metal workers was reduced by the effects of the 1981-1982 recession, but by 1986, the number of employed sheet metal workers had risen, although not to the levels reached before the recession. Between 1987 and 1995, it is expected that employment will continue to rise, passing the level achieved in 1981. For construction activities, employment on job sites is expected to grow by some 14.4% during the 1987 to 1995 period, a pace faster than the overall average. When replacement demand due to retirements and other persons leaving the trade is taken into account, as well as the effect of increasing industrial requirements, job prospects appear to be good. This will be the case especially in Ontario and Quebec, where industrial growth and construction activity are expected to be strong in comparison with other regions.

Employment in the sheet metal trade can be sensitive to changing economic conditions especially as they affect construction and metal fabricating. Employment is also sensitive to seasonal variations through the year, with relative peaks during the warm weather months of the year.

Earnings

The Canadian Construction Association reported the following basic union hourly wage rates for sheet metal workers in 1987.

British Columbia	$19.66
Manitoba	19.25
Ontario – Ottawa	19.26
– Sarnia	21.45
– Toronto	19.82
Quebec	18.88
Prince Edward Island	16.05
Nova Scotia	20.31
New Brunswick – St. John	17.55

Welding and Flame Cutting Occupations

8335

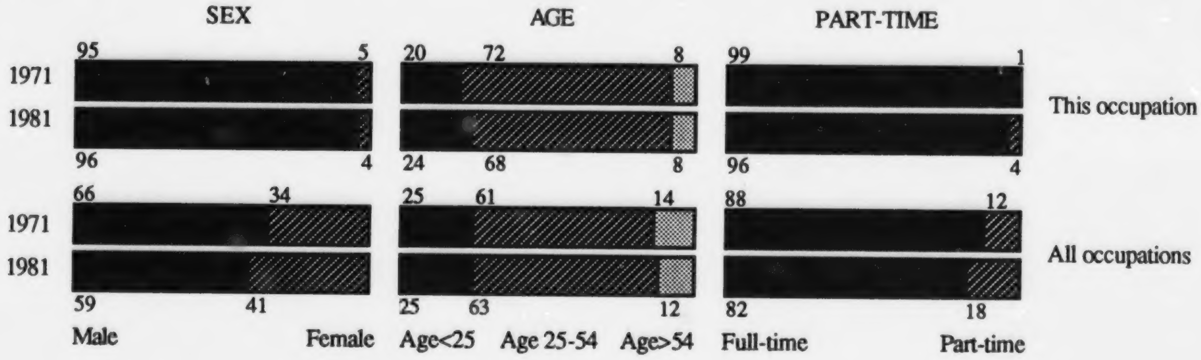
Employment Trends and Projections

	Employment			Average Annual Growth Rate (%)		
	1981	1986	1995	1971-81	1981-86	1987-95
This Occupation	91,600	85,400	100,400	4.7	-1.4	1.7
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation		All Occupations
	1987-95	% of 1987 Jobs	% of 1987 Jobs
Net New Job Openings	13,000	14.8	11.1
Replacement Openings	32,000	36.6	49.2
Total Job Openings	45,000	51.5	60.3

CENSUS - 1971 and 1981 (%)



1981 CENSUS - Main Industries of Employment (%)

Manufacturing (61)
- Metal Fabricating (17)
- Machinery (11)
- Motor Veh+Trls+Parts (8)

Services (12)
- Misc Services (12)

Construction (10)
- Construction (10)

Geographic Distribution of Employment - 1981 (%)

Newfoundland	1.2	Ontario	40.1
Prince Edward Island	0.3	Manitoba	4.2
Nova Scotia	2.8	Saskatchewan	3.0
New Brunswick	2.3	Alberta	13.1
Quebec	22.5	British Columbia	10.2

Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
- College (1981-86)	45	4.8
- University (1981-86)	51	5.4
Trade Vocational Schools (1983/84 only)	842	89.8

Welding and Flame Cutting Occupations 8335

Job Environment

All welding occupations involve the joining and cutting of metals using welding equipment. There are numerous welder categories, depending on the type of welding equipment and techniques used, the nature of the final product and the degree of expertise required. Accordingly, there exist designations such as arc welders, gas welders, combination welders, submerged arc welders, resistance welders, pressure vessel welders, welder-fitters, solderers and flame cutters. Usually welders are required to have knowledge of several welding techniques, even though they might use only one or two techniques in their jobs.

Although production welders work primarily indoors, many welding positions call for work both indoors and outdoors, and in construction, outdoor work is the norm. The physical demands of welding are heavy. Lifting and carrying heavy items are often required, as are prolonged periods of standing and crouching. A welder is exposed to very hot temperatures, noise, fumes and dust. A normal work week is five days of 37 to 40 hours, although shift work is not uncommon in this trade.

Educational Background and Skills

Although compulsory certification is required for welders of pressure vessels, for most other welders, certification is not compulsory but desirable. Training is usually by an apprenticeship program or on-the-job training. Certification requirements may vary from province to province, but after passing the required examination welders may have an interprovincial seal allowing them to work in other provinces or territories. In most cases, a minimum Grade 10 education is required; in other cases, such as welder-fitters who are required to read printouts and lay out their work, employers often expect a higher level of general education. A skilled welder with experience may advance to an inspecting job or supervisory job.

Nature of Supply

Most persons entering this occupational area do so from a trade vocational school and/or from an apprenticeship training program. In the past, immigration has also been an important source of supply.

The age structure of the welder group differs little from the total labour force. The group is heavily dominated by men, little change having occurred over the years.

Market Conditions and Job Prospects

Current market conditions are poorer than the average for all occupations. Unemployment is high in this occupational area, though there may be instances of shortages of specific welding skills.

Based on projections for manufacturing, services and construction, the outlook is for above-average employment growth over the next eight years. Future employment growth may be dampened by the technological changes that are taking place. The increased use of robots in manufacturing plants will reduce the requirements for welding machine operators. Similarly, the use of small explosive charges to bond large-diameter pipes (high-impact welding) may reduce the requirement for pipeline welders, if this technique becomes widely adopted. Programmable cutting machines will slow employment growth among manual flame cutters. These innovations have had the effect of limiting growth of lower skilled welding employment; prospects for highly skilled manual welders are better.

Most welding jobs are full-time in nature. Welders may be subjected to seasonal layoffs in construction and in manufacturing while production lines are retooled. Employment in this occupation area may be sensitive to fluctuations in general economic conditions.

Earnings

In 1987, Vancouver-area welders earned between $13.58 and $19.70 per hour in unionized jobs and from $12.00 to $16.30 per hour in non-unionized jobs. Maintenance welders (journeymen) in Edmonton earned between $12.30 and $16.80, and in Calgary, between $12.40 and $17.60. Production welders (journeymen) in Edmonton made between $10.50 and $14.70 per hour, and in Calgary, between $12.50 and $17.30. In Montreal, welders earned between $10.32 and $17.52 per hour.

The National Graduate Survey reported that 1982 community college graduates working in this occupational area two years after graduation earned an average of $15,500 in 1984, and university graduates, $17,300.

Inspecting, Testing, Grading and Sampling Occupations: Metal Shaping and Forming, Except Machining

8336

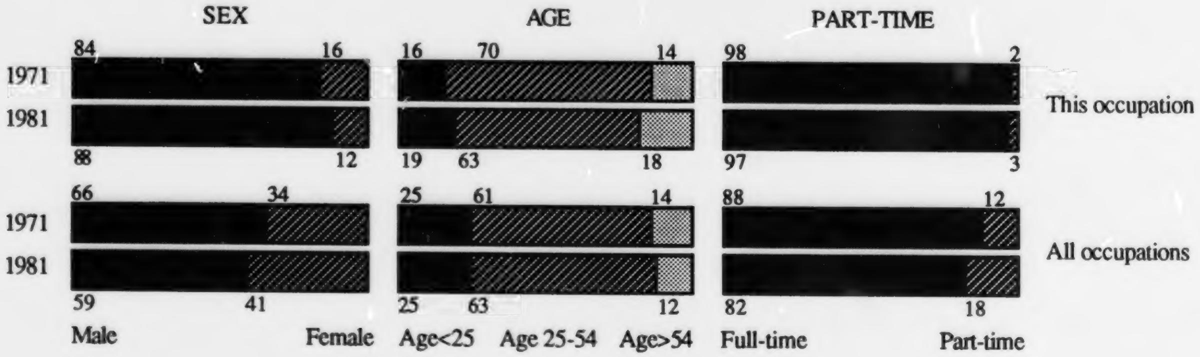
Employment Trends and Projections

	Employment			Average Annual Growth Rate (%)		
	1981	1986	1995	1971-81	1981-86	1987-95
This Occupation	2,300	2,000	2,300	9.3	−2.3	1.5
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation		All Occupations
	1987-95	% of 1987 Jobs	% of 1987 Jobs
Net New Job Openings	300	12.9	11.1
Replacement Openings	1,000	48.3	49.2
Total Job Openings	1,300	61.1	60.3

CENSUS – 1971 and 1981 (%)



1981 CENSUS – Main Industries of Employment (%)

Manufacturing (83)
- Metal Fabricating (44)
- Primary Metals (14)
- Machinery (7)

Services (7)
- Business Services (5)
- Misc Services (2)

Trans + Stor + Comm + Util (5)
- Electric Power (2)
- Rail Transport (1)

Geographic Distribution of Employment – 1981 (%)

Newfoundland		Ontario	59.7
Prince Edward Island		Manitoba	1.6
Nova Scotia	2.1	Saskatchewan	1.6
New Brunswick	1.1	Alberta	8.0
Quebec	24.8	British Columbia	2.3

Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
– College (1981-86)	5	18.5
– University (1981-86)	0	0.0
Trade Vocational Schools (1983/84 only)	22	81.5

Inspecting, Testing, Grading and Sampling Occupations: Metal Shaping and Forming, Except Machining

8336

Job Environment

Boiler testers, can inspectors, welding inspectors and spring testers test and inspect metal parts that are shaped or formed by methods other than machining. Such methods include welding, extrusion, forging and stamping. Each type of metal shaping process requires specific knowledge and experience on the part of the inspector. Inspectors of final products assembled from metal parts (automobiles, trailers, electronic equipment, electrical products, machinery, etc.) are classified elsewhere (see standard occupational codes 8526 and 8536), as are inspectors of machined metal products and metal castings (see standard occupational codes 8316 and 8396).

Inspection methods used by welding inspectors, the most prevalent of occupations in this grouping, include visual inspection and the use of precision measuring instruments, fluorescent penetrants, X-ray equipment, ultrasonic testing equipment and magnetic-testing machines.

Educational Background and Skills

The educational requirements for this group of occupations range from specialized formal training, for higher level inspecting functions, to Grade 10, for less demanding inspection positions. Welding inspectors, for example, require training and experience in welding. They must know the different types of welding equipment, welding techniques and the properties of different metals that are to be joined or cut. In some applications, they must be aware of regulations governing the quality of welds. On the other hand, extensive training is not required of a worker whose job is to detect and remove burrs on cut metal edges. Inspectors are normally promoted into their positions from within their organization, usually after demonstrating a knowledge of the company's products and processes. Career advancement opportunities from this occupational area are, however, limited.

Nature of Supply

The average age of workers in this group was about 39 in 1981, which was slightly older than in the labour force overall and which is perhaps indicative of the experience required for most inspecting jobs. Most inspectors in these occupations are men.

Market Conditions and Job Prospects

Employment growth in this occupational group was above average during the 1970s, but declined during the recessionary periods of the early 1980s. Although about average growth is projected to 1995, many of the new jobs will, in fact, represent the recovery of previous employment losses. Most metal-forming inspection jobs are found in the manufacturing sector. Employment tends to be full-time and steady year-round.

Approximately 1,300 job openings will become available over the eight-year projection period. Of these, one quarter will be new jobs and three quarters, replacement openings.

Boilermakers, Platers and Structural Metal Workers 8337

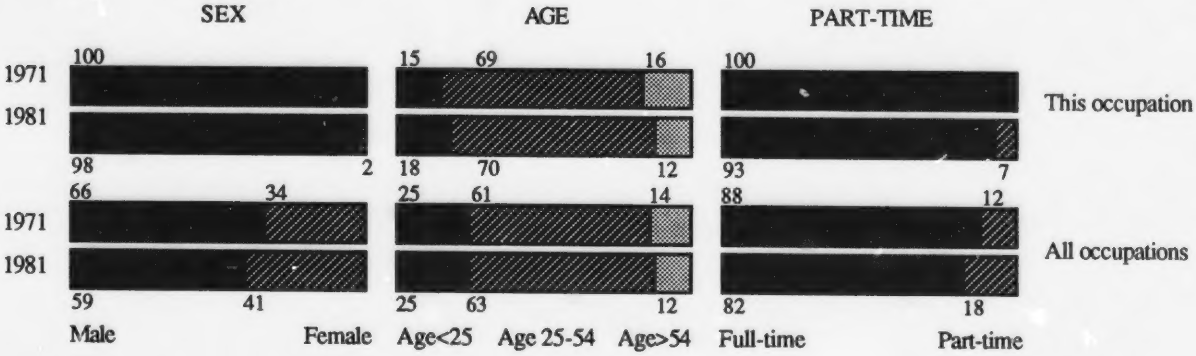
Employment Trends and Projections

	Employment			Average Annual Growth Rate (%)		
	1981	1986	1995	1971-81	1981-86	1987-95
This Occupation	4,400	3,700	4,300	1.3	−3.4	1.6
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation		All Occupations
	1987-95	% of 1987 Jobs	% of 1987 Jobs
Net New Job Openings	500	13.3	11.1
Replacement Openings	2,900	77.2	49.2
Total Job Openings	3,400	90.5	60.3

CENSUS - 1971 and 1981 (%)



1981 CENSUS - Main Industries of Employment (%)

Manufacturing (59)
- Metal Fabricating (34)
- Shipbuilding+Repair (9)
- Primary Metals (3)

Construction (17)
- Construction (17)

Trans+Stor+Comm+Util (11)
- Rail Transport (7)
- Electric Power (4)

Geographic Distribution of Employment - 1981 (%)

Newfoundland	3.5	Ontario	33.6
Prince Edward Island	0.1	Manitoba	4.7
Nova Scotia	6.2	Saskatchewan	2.7
New Brunswick	6.1	Alberta	12.3
Quebec	20.3	British Columbia	10.6

Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
- College (1981-86)	0	0.0
- University (1981-86)	2	6.3
Trade Vocational Schools (1983/84 only)	30	93.8

For further information, contact:

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(613) 236-9455

Boilermakers, Platers and Structural Metal Workers

8337

Job Environment

Workers in this occupational group construct, erect and repair boilers, tanks and large containment vessels, which are used in a variety of industrial settings, such as chemical and petrochemical manufacturing, pulp mills and oil and gas refining. Boilermakers fabricate smaller boilers and tanks or components of larger ones in a shop or factory. They then install or assemble boilers and containment vessels on site. In their work, boilermakers interpret detailed plans and make measurements for metal plates and tubes. They use a wide range of tools, including torches and grinders.

Working conditions are often cramped and uncomfortable and involve exposure to chemical vapours or wetness. When inside boilers and other vessels, boilermakers must often work at considerable heights, exposed to high noise levels. Protective clothing and other safety gear is routinely used.

Educational Background and Skills

The accepted avenue of entry into the boilermaking trade is apprenticeship. All provinces offer apprenticeship programs in boilermaking. Most are of three year's duration, except in Prince Edward Island and Ontario, where they are four years long. Educational requirements are Grade 9 in New Brunswick, Manitoba and Saskatchewan and Grade 10 in all other provinces except Quebec and Alberta, where no requirement is specified. Under the Interprovincial Standards Programme, approved training obtained in any province is recognized across Canada. Tradesman's qualifications are compulsory in Quebec.

Nature of Supply

Women, who represent only a small proportion of the trade, are encouraged to enter the occupation via apprenticeship.

Immigrants destined specifically for this trade were a significant source of supply over the 1981 to 1985 period. In spite of year-to-year fluctuations in the number of visas and temporary employment authorizations, the number of boilermakers entering the work force in this fashion represent a considerable proportion of those entering via apprenticeship.

Market Conditions and Job Prospects

Based on the growth prospects expected for the manufacturing, construction, transportation and utilities sectors, the employment outlook for this occupation calls for above-average growth over the next eight years. This is a minor departure from the 1970s, when employment grew at a slightly slower-than-average pace. Over the forecast period, 500 new jobs are anticipated, as well as a large number of replacement openings, as census statistics indicate that boilermakers tend to leave their trade prior to retirement.

While most boilermakers work in the manufacturing industry, such as in steel mills, or for utilities, about one in 10 is found in shipbuilding. The construction industry employs roughly one in five.

Employment for this occupational group is vulnerable to changing economic conditions, given the nature of the industry. It is, however, stable throughout the year. Part-time opportunities in this occupation are few.

Earnings

The Canadian Construction Association reported the following 1987 hourly union wage rates for boilermakers:

British Columbia	$19.33
Manitoba	17.99
Ontario	20.07
Quebec	14.09
Prince Edward Island (1986)	18.71
Nova Scotia	17.76

Aircraft Fabricating and Assembling Occupations

8515

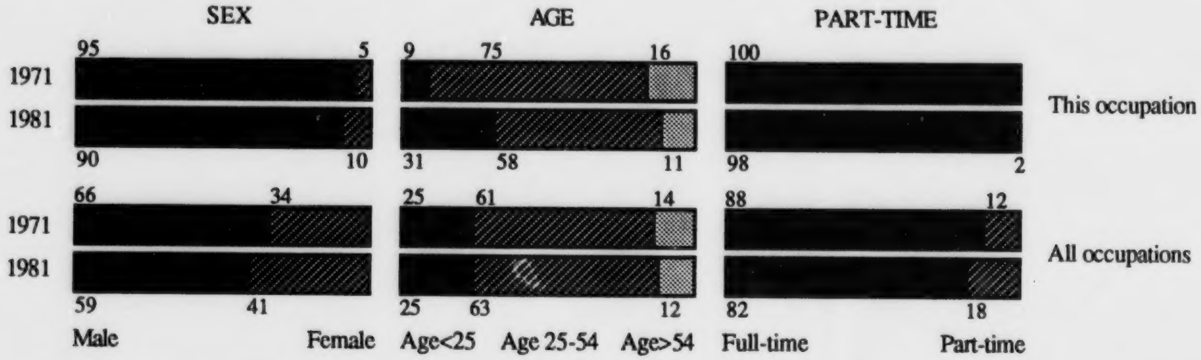
Employment Trends and Projections

	Employment			Average Annual Growth Rate (%)		
	1981	1986	1995	1971-81	1981-86	1987-95
This Occupation	6,100	5,800	7,100	5.2	-1.0	2.3
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation		All Occupations
	1987-95	% of 1987 Jobs	% of 1987 Jobs
Net New Job Openings	1,200	19.6	11.1
Replacement Openings	3,000	50.9	49.2
Total Job Openings	4,200	70.5	60.3

CENSUS – 1971 and 1981 (%)



1981 CENSUS – Main Industries of Employment (%)

Manufacturing (95) - Aircraft+Parts (91) - Electrical Products (1) - Metal Fabricating (1)	Trans+Stor+Comm+Util (2) - Air Transport (2)	Services (1) - Business Services (1)

Geographic Distribution of Employment – 1981 (%)

Newfoundland	0.1	Ontario	57.2
Prince Edward Island	0.1	Manitoba	5.4
Nova Scotia	1.8	Saskatchewan	
New Brunswick	0.3	Alberta	0.6
Quebec	33.1	British Columbia	1.3

Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
- College (1981-86)	1	5.3
- University (1981-86)	0	0.0
Trade Vocational Schools (1983/84 only)	18	94.7

Aircraft Fabricating and Assembling Occupations 8515

Job Environment

Examples of typical workers in this classification are aircraft riggers, engine installers, propeller installers and wing assemblers. Their duties include fitting, bolting, riveting and adjusting manufactured parts and assembled components. Aircraft fabricators are usually employed in a clean manufacturing-plant environment. They are highly skilled in the use of special hand and power tools, jigs and fixtures.

Educational Background and Skills

The minimum level of education required in these occupations is secondary school graduation. Specific training is available either on the job or through a community college or vocational program that emphasizes aircraft manufacturing and repair or aeronautical technology.

Nature of Supply

The primary sources of new supply to this occupation are the formal post-secondary education system and the secondary education system. Minor sources of supply include labour force re-entrants, immigrants and military personnel.

Although this occupation continues to be dominated by men, the number of women choosing this career has been increasing. Most individuals work in Ontario and Quebec, where the aircraft manufacturing industry is concentrated. During the 1971 to 1981 period, the average age dropped from 42 to 35 years because of a substantial increase in the number of people under 25 entering these occupations. A typical career lasts 30 to 35 years, with entry normally occurring between the ages of 20 and 24.

Market Conditions and Job Prospects

The short-term employment outlook for aircraft fabricators, who work almost entirely in the aircraft and parts manufacturing industry (91%), is optimistic. Steady growth in the demand for exports and domestic air transportation services will sustain long-term activity in the industry.

Although strong employment expansion experienced in the 1970s decreased into a net employment loss in the early 1980s, current projections indicate employment will increase rapidly in the near future. Growth of 20% is expected in this occupation over the next eight years, for a total of 1,200 new jobs. Retirements are expected to create 3,000 additional vacancies.

Labour market conditions, which have improved in the last couple of years, were quite favourable in 1986. Unemployment among aircraft fabricators has lessened considerably.

Employment in the aircraft and parts manufacturing industry is typefied by boom-and-bust cycles. The awarding of major contracts often determines the direction of employment growth. Seasonal forces have little influence. Virtually all work in these occupations is full-time.

Inspecting, Testing, Grading and Sampling Occupations: Fabricating and Assembling Metal Products

8526

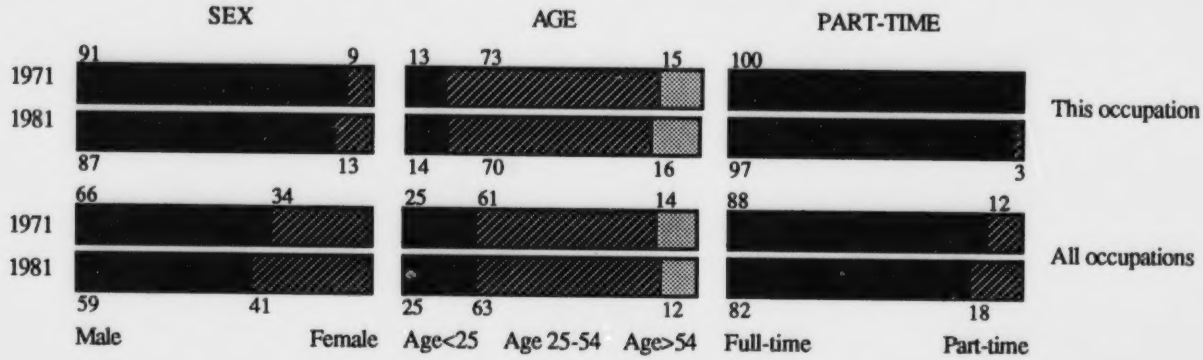
Employment Trends and Projections

	Employment			Average Annual Growth Rate (%)		
	1981	1986	1995	1971-81	1981-86	1987-95
This Occupation	11,800	12,900	15,700	4.6	1.8	2.5
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation		All Occupations
	1987-95	% of 1987 Jobs	% of 1987 Jobs
Net New Job Openings	2,800	21.5	11.1
Replacement Openings	5,600	43.6	49.2
Total Job Openings	8,400	65.1	60.3

CENSUS – 1971 and 1981 (%)



1981 CENSUS – Main Industries of Employment (%)

Manufacturing (87)
- Motor Veh+Trls+Parts (43)
- Aircraft+Parts (20)
- Machinery (10)

Trans+Stor+Comm+Util (4)
- Air Transport (4)

Trade (3)
- Retail Trade (2)
- Wholesale Trade (2)

Geographic Distribution of Employment – 1981 (%)

Newfoundland	0.3	Ontario	64.3
Prince Edward Island		Manitoba	3.0
Nova Scotia	0.8	Saskatchewan	0.2
New Brunswick	0.2	Alberta	1.5
Quebec	26.4	British Columbia	3.4

Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
– College (1981-86)	50	35.2
– University (1981-86)	78	54.9
Trade Vocational Schools (1983/84 only)	14	9.9

Inspecting, Testing, Grading and Sampling Occupations: Fabricating and Assembling Metal Products

8526

Job Environment

Agricultural-equipment inspector, automobile inspector, aircraft tester, business-machine tester, sampler and cable tester are examples of occupations in this category. They involve quality control in the fabrication and assembly of metal components or products. In some positions, parts or sub-assemblies are inspected and tested; in others, the finished products are inspected. Testing with specialized tools often complements visual inspection. Some jobs may require travelling. After a number of years of experience, inspectors may work their way up from the shop or factory floor. A five-day work week of 35 to 40 hours is normal.

Educational Background and Skills

The minimum educational level necessary for entry into these inspecting occupations varies from Grade 9 to high-school graduation. Relevant experience is always required. As of 1981, most metal products inspectors had completed some secondary school education. For specialized inspection work like aircraft inspection, instrument inspection or turbine inspection, training and experience in the field obtained through apprenticeship or on-the-job training is essential. Other requirements include sound knowledge of the particular product, good eye-sight and perceptual ability.

Nature of Supply

The major sources of new supply to this occupation are persons re-entering the labour force and graduates from the formal education system. College graduates in this occupation two years after graduation are found to have qualifications in electrical/electronic engineering technologies.

Between 1971 and 1981, this occupation was a growing source of employment for women, whose representation increased from 9% to 13%. This trend is expected to continue.

The average age in these occupations is significantly higher than the average for the labour force as a whole, because seven out of every 10 workers are between 25 and 54 years of age. This characteristic reveals the importance of prior related work experience. Most metal products inspectors work in Ontario (64%) and Quebec (26%).

Market Conditions and Job Prospects

Current projections suggest employment will grow at a vigorous rate of 22% by the end of the forecast period. Resulting job openings should total about 8,400. A substantial number of these will result from retirements and deaths, as an above-average proportion of the work force is in the 54-plus age group.

The manufacturing industry employs 87% of metal product inspectors, one-half of whom are in the motor vehicle industry. Employment in these occupations is therefore influenced by changing economic conditions and also by seasonal factors. Only a small proportion of the work is part-time.

This field is currently facing favorable labour market conditions. According to unemployment indicators, conditions for metal products inspectors have been better in the 1980s than the labour market average. However, an industry trend toward the incorporation of inspection and testing into other duties of assemblers and fabricators may reduce the employment growth potential for specialized inspectors, in which case the employment growth projections presented here would be overestimated.

Earnings

The National Graduate Survey indicates that 1984 average annual earnings for 1982 university graduates working in metal products inspection were $22,442. The equivalent salary for community college graduates was $20,595.

The following table[1] lists 1986 hourly wages for a number of jobs in the automotive industry.

Axle tester	$13.32
Engine tester	13.49
Gear and pinion tester	13.32
Bench inspector	13.22
Floor inspector	13.49
Gauge inspector	13.68
Gear inspector	13.49
Specifications inspector	13.49
Metal finish inspector	13.49
Water leak checker and repairer	13.49

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[1] Based on 1986 collective bargaining agreements in the automotive sector.

Electrical and Related Equipment Installing and Repairing Occupations

8533

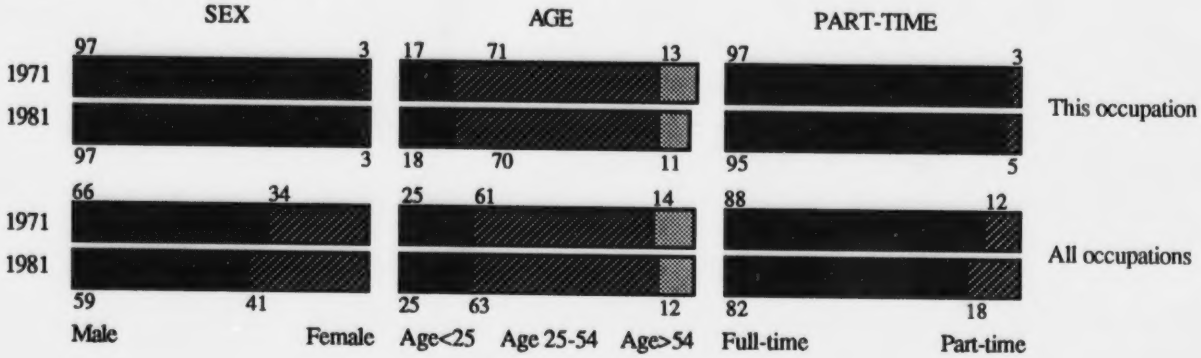
Employment Trends and Projections

	Employment 1981	Employment 1986	Employment 1995	Average Annual Growth Rate (%) 1971-81	Average Annual Growth Rate (%) 1981-86	Average Annual Growth Rate (%) 1987-95
This Occupation	38,700	39,000	43,900	6.5	0.1	1.3
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation 1987-95	This Occupation % of 1987 Jobs	All Occupations % of 1987 Jobs
Net New Job Openings	4,400	11.1	11.1
Replacement Openings	15,100	38.1	49.2
Total Job Openings	19,400	49.2	60.3

CENSUS – 1971 and 1981 (%)



1981 CENSUS – Main Industries of Employment (%)

Manufacturing (35)
- Primary Metals (5)
- Electrical Products (5)
- Motor Veh+Trls+Parts (4)

Trade (19)
- Retail Trade (13)
- Wholesale Trade (6)

Construction (16)
- Construction (16)

Geographic Distribution of Employment – 1981 (%)

Newfoundland	1.5	Ontario	39.8
Prince Edward Island	0.1	Manitoba	4.2
Nova Scotia	3.2	Saskatchewan	2.4
New Brunswick	2.4	Alberta	7.0
Quebec	28.4	British Columbia	10.7

Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
– College (1981-86)	184	38.8
– University (1981-86)	6	1.3
Trade Vocational Schools (1983/84 only)	284	59.9

Electrical and Related Equipment Installing and Repairing Occupations

8533

Job Environment

Air-conditioning repairers, aircraft electricians, automobile electricians, major appliance repairers and refrigerator repairers are typical workers in this unit. Their major responsibilities include installing, servicing, repairing and rebuilding household appliances, industrial machinery, transportation vehicles, aircraft and ships. Electricians must be familiar with a wide range of diagnostic and repair equipment, such as ammeters, voltmeters, ohmmeters, pliers, wirecutters, crimping tools and soldering tools. The electrical equipment repairer often works from technical drawings, wiring diagrams or blueprints. The work environment may vary from a customer's home to a shop or factory and may involve exposure to noxious liquids and other hazards that require the use of safety equipment.

Educational Background and Skills

High school or equivalent vocational school education is the best preparation for employment in this occupation. Before becoming a journeyman, however, an individual must follow an apprenticeship program, which includes periods of formal training in electronics. The apprenticeship lasts four years or less, depending on previous experience and courses completed.

Nature of Supply

The major sources of new supply to this occupation are graduates from the secondary school system, labour force re-entrants and immigrants. Other sources of supply include graduates from the post-secondary education system and individuals leaving the military. The supply growth will diminish somewhat over the projection period, however, owing to inter-occupational mobility. Preliminary data indicate that movement out of this occupation into related occupations will exceed movement into the field, suggesting that for many people, these are entry-level positions in their careers.

This occupational area has remained predominately male. The average age (37) as well as the age structure have remained relatively stable since 1971. A career normally lasts 30 years, with entrance occurring between the ages of 25 and 29.

Market Conditions and Job Prospects

Electrical equipment repairers work in various industrial sectors, particularly in the manufacturing, trade and construction sectors. Employment prospects for electrical equipment repairers are favourable in the short term, owing to expected strong demand for electrical machinery and equipment by industry and government. The demand for white goods, or electrical appliances, resulting from anticipated growth in the housing industry, should increase employment. After 1990, these sectors will expand at a more modest pace. Employment opportunities in this occupation tend to be moderately affected by economic conditions. However, there is little seasonal variability.

Employment growth was above-average in the 1970s, but declined during the early 1980s. Current projections indicate the number of jobs will increase at the same rate as for all occupations over the next eight years. This should result in 19,400 openings, of which an average number will be replacement opportunities, since the size of the 54-plus age group is proportional to that of the entire labour force.

Earnings

The following table[1] provides a comparison of 1985 average hourly rates for electrical repairers in industries across Canada.

Grain mills	$14.49
Breweries	17.84
Furniture	11.99
Iron and steel mills	17.08
Structural metal	13.02
Wire and wire products	14.88
Agricultural implements	14.75
Aircraft and parts	14.07
Motor vehicles	15.68
Communications equipment	13.66
Electrical industrial equipment	12.98
Industrial chemicals	6.10

The National Graduate Survey reported 1984 average annual earnings of $23,671 for 1982 community college graduates.

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[1] Labour Canada, *Wages and Working Conditions in Canada*, 1985.

Electronic and Related Equipment Installing and Repairing Occupations

8535

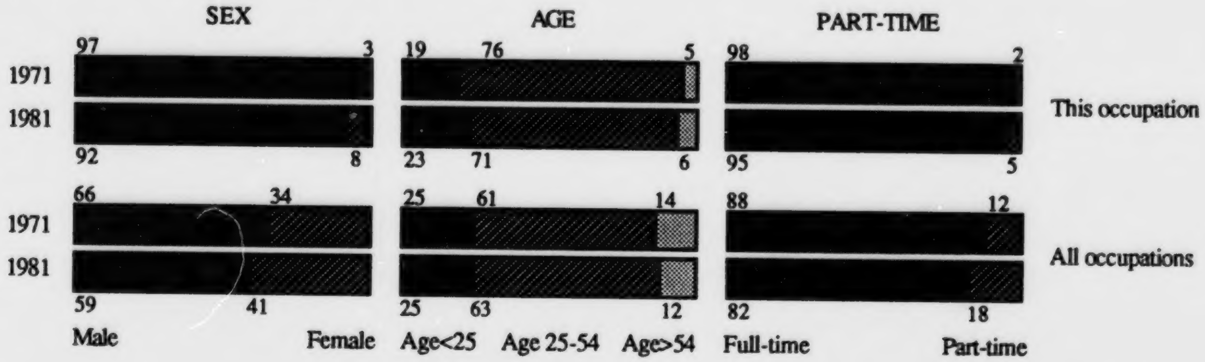
Employment Trends and Projections

	Employment 1981	Employment 1986	Employment 1995	Average Annual Growth Rate (%) 1971-81	Average Annual Growth Rate (%) 1981-86	Average Annual Growth Rate (%) 1987-95
This Occupation	13,500	14,400	15,700	8.6	1.4	0.9
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation 1987-95	This Occupation % of 1987 Jobs	All Occupations % of 1987 Jobs
Net New Job Openings	1,100	7.4	11.1
Replacement Openings	3,300	22.2	49.2
Total Job Openings	4,300	29.6	60.3

CENSUS – 1971 and 1981 (%)



1981 CENSUS – Main Industries of Employment (%)

Trans+Stor+Comm+Util (31)
- Telephone+Telegraph (15)
- Radio+TV Broadcast (11)
- Electric Power (2)

Manufacturing (25)
- Electrical Products (16)
- Machinery (4)
- Misc Manufacturing (2)

Trade (17)
- Retail Trade (9)
- Wholesale Trade (8)

Geographic Distribution of Employment – 1981 (%)

Newfoundland	0.9	Ontario	36.6
Prince Edward Island	0.3	Manitoba	2.7
Nova Scotia	2.6	Saskatchewan	1.3
New Brunswick	1.6	Alberta	6.5
Quebec	36.8	British Columbia	10.7

Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
- College (1981-86)	396	55.0
- University (1981-86)	100	13.9
Trade Vocational Schools (1983/84 only)	224	31.1

Electronic and Related Equipment Installing and Repairing Occupations

8535

Job Environment

Electronic instrument technicians, radio repairers, radar repairers, and communication technicians are typical occupations in this group. Electronic equipment installers and repairers may work on a variety of electronic equipment, including radio and television transmitters, computing equipment, navigation aids, radar and various types of electronic recording equipment. In repair work they test electronic components and circuits to locate defects and then replace any faulty components and wiring. Work is usually indoors, although the site constantly changes. Electronic equipment installers and repairers are often exposed to hazards which require the use of safety equipment.

Educational Background and Skills

Employment in this occupation usually requires the completion of a two- or three-year community college program in electronics. Graduates then have to supplement their formal education with a period of on-the-job training under the supervision of an experienced electrician. Alternatively, individuals may take an apprenticeship program, which lasts up to four years and combines on-the-job training with courses at a community college or institute of technology.

Nature of Supply

The major sources of new supply to this occupation are the formal post-secondary education system and the apprenticeship program. To a minor extent, labour force re-entrants, immigrants and individuals leaving the military contribute to the supply. Preliminary estimates indicate that the number of people leaving this occupation to move to others will be greater than the number entering the occupation from related ones, with the net result of reducing the supply. It also suggests that for many this occupation represents an entry-level position in their careers.

Most members of this occupational group are men, although the number of women has been increasing. The majority work in Quebec and Ontario. The age structure and the average age (33) have stayed fairly constant since 1971. The average career spans 30 years, with entry generally taking place between the ages of 25 and 29.

Market Conditions and Job Prospects

Employment for electronic equipment repairers is scattered throughout various industrial sectors, with concentrations occurring in the trade, storage, communications, utilities, manufacturing and trade sectors. According to projections for these areas, employment prospects for electronic equipment repairers are modest. The short-term outlook for the telecommunications industry forecasts moderate growth to 1990. The electrical products manufacturing industry will experience a surge in output owing to increased demand for machinery and equipment by industry and government. After 1990, these sectors are expected to expand at a slower pace. Current employment projections indicate future growth will remain below the overall occupational average. This represents a departure from trends in the past, when employment grew faster than average.

Hirings attributable to replacement openings will not be as significant as in other occupations, which is indicated by the low proportion of electronics repairers in the 54-plus age group. Over the next eight years, approximately 4,300 jobs will become available.

Labour market conditions for electronic repairers are currently favourable, relative to other occupations, as reflected in the unemployment insurance claimant-to-employment-stock ratio, which is about one-half the national average. Employment opportunities are moderately influenced by economic conditions, and employment patterns have been somewhat cyclical in nature. There is little part-time work and no evident seasonal variation.

Earnings

The National Graduate Survey reported 1984 average earnings of $20,725 for 1982 community college graduates working in this occupational area.

Inspecting, Testing, Grading and Sampling Occupations: Fabricating, Assembling, Installing and Repairing Electrical, Electronic and Related Equipment

8536

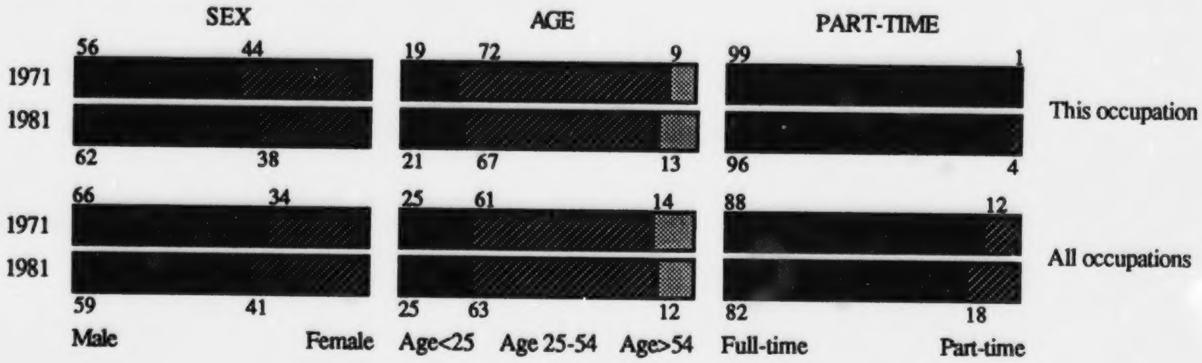
Employment Trends and Projections

	Employment			Average Annual Growth Rate (%)		
	1981	1986	1995	1971-81	1981-86	1987-95
This Occupation	9,200	10,200	11,200	5.5	2.2	0.7
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation		All Occupations
	1987-95	% of 1987 Jobs	% of 1987 Jobs
Net New Job Openings	600	5.7	11.1
Replacement Openings	3,400	32.3	49.2
Total Job Openings	4,000	38.0	60.3

CENSUS – 1971 and 1981 (%)



1981 CENSUS – Main Industries of Employment (%)

Manufacturing (81)
- Electrical Products (65)
- Machinery (9)
- Misc Manufacturing (3)

Trans+Stor+Comm+Util (7)
- Telephone+Telegraph (4)
- Electric Power (2)

Trade (5)
- Wholesale Trade (4)
- Retail Trade (1)

Geographic Distribution of Employment – 1981 (%)

Newfoundland	0.3	Ontario	63.3
Prince Edward Island		Manitoba	2.0
Nova Scotia	1.0	Saskatchewan	0.3
New Brunswick	0.3	Alberta	2.1
Quebec	28.4	British Columbia	2.6

Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
- College (1981-86)	50	51.0
- University (1981-86)	11	11.2
Trade Vocational Schools (1983/84 only)	37	37.8

Inspecting, Testing, Grading and Sampling Occupations: Fabricating, Assembling, Installing and Repairing Electrical, Electronic and Related Equipment

8536

Job Environment

Battery inspector, electrical tester, household-appliance inspector and transmitter tester are typical occupations in this group. They involve inspecting, testing, grading, sampling and quality control activities in the fabrication, assembly, installation and repair of electrical and electronic equipment and components. Inspectors in this classification often work in an electrical products manufacturing environment, where they are often exposed to hazards requiring the use of safety equipment.

Educational Background and Skills

The minimum educational requirement for these occupations is secondary school graduation. In addition, a basic understanding of electrical or electronic equipment is essential. Individuals usually become inspectors only after several years of related experience. Prospective entrants must undergo a period of on-the-job training, lasting six months to four years, depending on the kind of product being inspected or tested. Graduation from a community college program in an electronics-related area is recommended.

Nature of Supply

The primary source of new labour supply to these occupations is the formal post-secondary education system. Other potential sources of new supply include immigrants, labour force re-entrants and secondary school graduates. Preliminary estimates of inter-occupational mobility indicate that movements into this occupational field from related ones will exceed the flow of employees to other occupations, suggesting that, for many, an inspecting job represents an advanced position in their career.

Most individuals in these occupations are men and most work in Ontario and Quebec. The average age of inspectors (37) has remained relatively stable since 1971. However, the age structure has shifted, with the number of persons in the 55-plus age group increasing, and that in the 25 to 54 age group decreasing. Individuals normally enter the occupation between the ages of 25 and 34. A typical career lasts 25 to 30 years.

Market Conditions and Job Prospects

Employment growth was strong throughout the 1970s and continued on an upward path during the 1980s. Current projections suggest employment will increase 6% in the forecast period. During this time, approximately 4,000 job openings will become available. A substantial number of these opportunities will be replacement openings, because a high proportion of employees in this occupation are in the 54-plus age group. New jobs will not account for many of the openings.

In comparison with others, workers in this occupation fared well in the labour market throughout the 1982 recession. In 1986, they were still facing favourable labour market conditions, as indicated by the below-average unemployment insurance claimant-to-employment-stock ratio.

Economic conditions affect employment opportunities in this occupation, especially in the electrical products industry. Seasonal forces, however, exert little influence, and virtually all work is full-time.

Radio and Television Repairers

8537

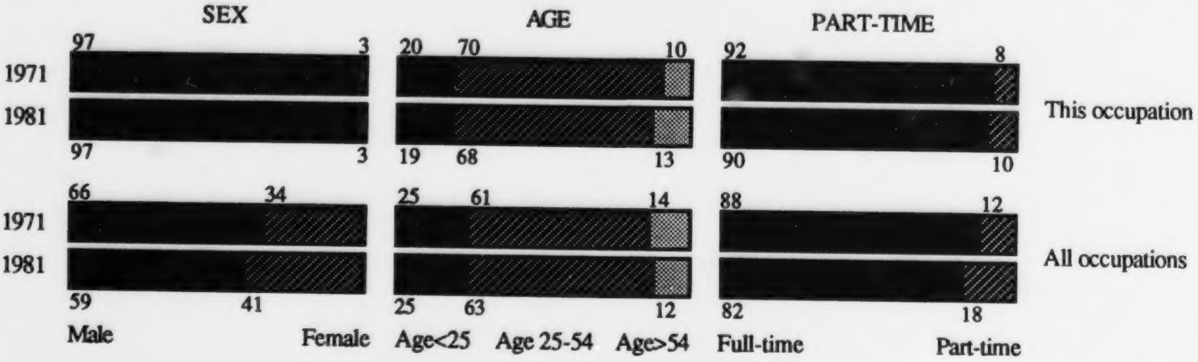
Employment Trends and Projections

	Employment			Average Annual Growth Rate (%)		
	1981	1986	1995	1971-81	1981-86	1987-95
This Occupation	9,700	10,800	12,000	-0.1	2.1	1.0
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation		All Occupations
	1987-95	% of 1987 Jobs	% of 1987 Jobs
Net New Job Openings	900	8.3	11.1
Replacement Openings	6,100	55.0	49.2
Total Job Openings	7,000	63.3	60.3

CENSUS – 1971 and 1981 (%)



1981 CENSUS – Main Industries of Employment (%)

Trade (74)
- Retail Trade (67)
- Wholesale Trade (7)

Manufacturing (10)
- Electrical Products (9)

Trans+Stor+Comm+Util (7)
- Radio+TV Broadcast (4)
- Telephone+Telegraph (2)

Geographic Distribution of Employment – 1981 (%)

Newfoundland	1.2	Ontario	41.8
Prince Edward Island	0.8	Manitoba	4.1
Nova Scotia	4.1	Saskatchewan	3.8
New Brunswick	2.6	Alberta	9.6
Quebec	19.2	British Columbia	12.1

Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
- College (1981-86)	114	38.1
- University (1981-86)	11	3.7
Trade Vocational Schools (1983/84 only)	174	58.2

Radio and Television Repairers

8537

Job Environment

Radio and television repairers, including sound-equipment servicers, radio electricians and television technicians service and repair television receivers, radio receivers, phonographs and tape recorders. This involves testing and changing electronic and solid-state components, such as electron tubes, resistors and capacitors, and diagnosing faulty equipment by checking the voltage at specified points in the circuitry. Work is usually indoors on the customer's premises or in a repair shop or factory.

Educational Background and Skills

Given the increased complexity in the electronics field, the completion of a community college or institute of technology program in electronics is essential in this occupation. A period of on-the-job training is usually also required. Alternatively, individuals may take an apprenticeship program, which normally lasts between three and four years and includes periods of full-time attendance at a community college or institute of technology.

Nature of Supply

The major source of new supply to this occupation is graduates from the post-secondary education system and the apprenticeship program. Other sources of supply include labour force re-entrants, immigrants and persons leaving the military. Estimates indicate that the number of individuals leaving this occupation for related areas will marginally exceed the number coming from other occupations, which suggests that for many this occupation represents an initial position in their career.

Most radio and television service technicians are men. There has been little increase in the number of women entering this field. The age structure and average age (37) of the occupation have not changed substantially since 1971. A typical career spans approximately 15 years and normally starts between the ages of 20 and 24.

Market Conditions and Job Prospects

Current projections indicate employment growth will be 8.3% in the forecast period, which is less than the overall employment growth rate. As a result, approximately 900 new jobs will become available in the next eight years. Replacement requirements will provide an additional avenue of entry into the occupation, as an above-average proportion of this workforce is in the 54-plus age category and is expected to retire by the end of the forecast interval.

Based on the outlook for the retail trade industry, which employs two-thirds of all radio and television repairers, employment prospects in this occupation are good. Favourable interest rates should maintain consumer spending, which in turn is expected to stimulate growth in retail trade. Employment opportunities for radio and television repairers are moderately susceptible to changing economic conditions. In 1981, 10% were employed on a part-time basis. Seasonal variability is not a factor in this occupation.

Despite the widespread surge in the use of radio and video equipment, the increased reliability and durability of these products coupled with falling prices have limited the employment growth potential of this occupation. The projections presented above may overestimate future growth.

Earnings

In 1986, unionized television repairers in Vancouver earned between $14.12 and $14.66 per hour, while non-unionized workers earned between $8.00 and $13.00 per hour. In Toronto, radio and television repairers earned average weekly salaries ranging from $264 to $304.

The National Graduate Survey reported 1984 earnings averaging $14,612 for 1982 community college graduates working in this occupation.

Cabinet and Wood Furniture Makers

8541

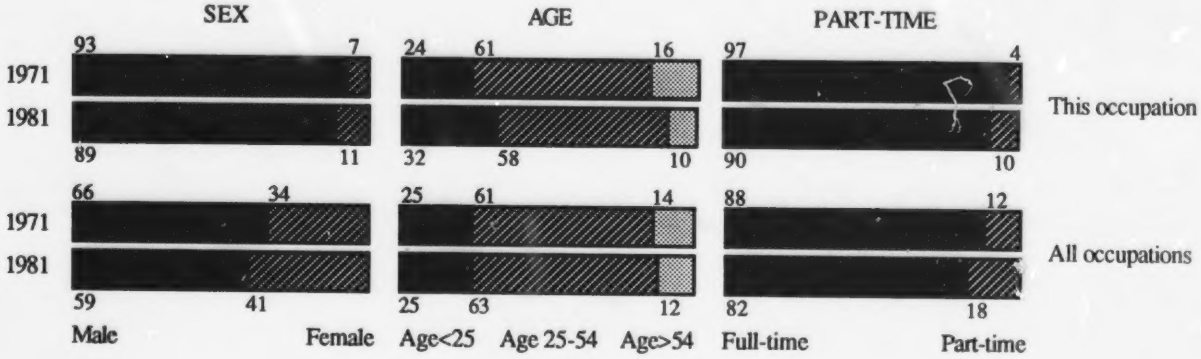
Employment Trends and Projections

	Employment			Average Annual Growth Rate (%)		
	1981	1986	1995	1971-81	1981-86	1987-95
This Occupation	25,900	24,000	27,100	8.3	-1.5	1.1
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation		All Occupations
	1987-95	% of 1987 Jobs	% of 1987 Jobs
Net New Job Openings	2,300	9.5	11.1
Replacement Openings	8,900	36.0	49.2
Total Job Openings	11,200	45.5	60.3

CENSUS – 1971 and 1981 (%)



1981 CENSUS – Main Industries of Employment (%)

Manufacturing (79)
- Furniture+Fixture (47)
- Wood (26)
- Metal Fabricating (2)

Trade (9)
- Retail Trade (6)
- Wholesale Trade (3)

Construction (8)
- Construction (8)

Geographic Distribution of Employment – 1981 (%)

Newfoundland	0.4	Ontario	33.5
Prince Edward Island	0.2	Manitoba	4.4
Nova Scotia	1.1	Saskatchewan	1.8
New Brunswick	1.4	Alberta	8.5
Quebec	37.1	British Columbia	11.6

For further information, contact:

International Woodworkers of America
Canadian Regional Councils
2088 Weston Road
Weston, Ontario M9N 1X4
(416) 247-8628

Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
- College (1981-86)	68	20.3
- University (1981-86)	30	9.0
Trade Vocational Schools (1983/84 only)	237	70.7

Cabinet and Wood Furniture Makers

8541

Job Environment

This group includes assemblers, bench carpenters, cabinet makers and others. Using blueprints, cabinet makers construct and repair wooden articles, such as furniture, office equipment, doors, window and door frames, and store fixtures. In many instances their artistic touch is as important as their woodworking skills. In the past, furniture was totally hand-made and cabinet making and furniture making were very labour-intensive, skill-demanding trades. Today, however, as sophisticated machines and power tools perform many functions of the job, cabinet and wood furniture makers no longer have to be as highly skilled. Work settings for cabinet makers include factories and custom shops where workers are exposed to noise, vibration and dust. A five-day work week of 35 to 40 hours is normal.

Educational Background and Skills

There are two ways of qualifying to become a cabinet maker. The traditional method is through an apprenticeship lasting three to four years and including a period of in-school training. The alternative is to complete a community college program in cabinet making or woodworking.

Nature of Supply

The main sources of supply to this occupation are apprentices and community college graduates. Other sources of supply include labour force re-entrants and immigrants. Although most cabinet makers are men, the number of women in this occupation has increased. The majority of cabinet makers work in Quebec and Ontario.

Over the 1971 to 1981 period, the average age dropped from 38 years to 34. During the same period, the proportion of cabinet makers over 54 decreased significantly, while the proportion of those under 25 increased.

A cabinet maker's career normally spans 40 years, with entry occurring between the ages of 20 and 24.

Market Conditions and Job Prospects

Cabinet makers experienced a large employment increase in the 1970s, but have suffered substantial recession-related employment losses in the early 1980s. During the next eight years, employment is expected to grow at an average rate. About 11,200 jobs should become available, the majority of which will be replacement openings, as the rate of new job creation is expected to be modest in this field.

Through the 1980s thus far, cabinet makers have faced poor labour market conditions. Despite improvements in recent years, unemployment remains quite high.

Cabinet makers are concentrated in the manufacturing sector (79%), particularly in the furniture and fixture industry. The employment in this area is vulnerable to changing economic conditions and seasonal factors. The proportion of the work force employed on a part-time basis tripled between 1971 and 1981.

Earnings

Cabinet makers who are not fully qualified earn between $5.00 and $7.00 per hour to start, while highly skilled workers may earn up to $17.00 per hour. Fully qualified workers, particularly master cabinet and furniture makers, earn as much as $35,000 per year. In 1987, rates for cabinet makers ranged from $11.19 to $16.79 an hour (union) and $8.00 to $15.00 (non-union).

The following table shows average rates of pay and pay ranges for furniture assemblers, as reported in Labour Canada's *Wages and Working Conditions in Canada*, October 1985.

Class A	$7.17 – $17.41	$10.60
Class B	5.25 – 11.35	7.72
Metal	7.10 – 11.21	9.47

The National Graduate Survey reported 1984 earnings averaging $13,086 for 1982 university graduates working in this occupation two years after graduation, and $12,913 for 1982 community college graduates.

Pattern Making, Marking and Cutting Occupations: Textile, Fur and Leather Products

8551

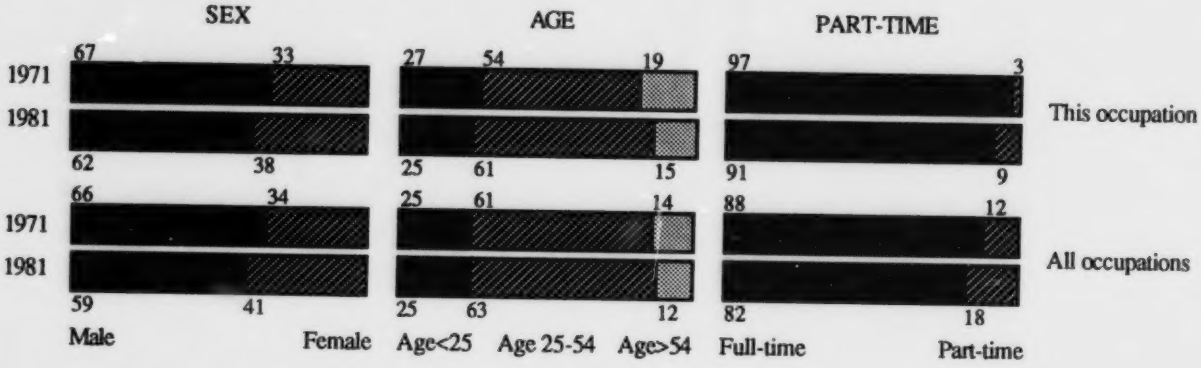
Employment Trends and Projections

	Employment 1981	Employment 1986	Employment 1995	Average Annual Growth Rate (%) 1971-81	Average Annual Growth Rate (%) 1981-86	Average Annual Growth Rate (%) 1987-95
This Occupation	11,000	10,100	11,100	0.9	-1.8	1.0
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation 1987-95	This Occupation % of 1987 Jobs	All Occupations % of 1987 Jobs
Net New Job Openings	800	7.9	11.1
Replacement Openings	6,300	61.2	49.2
Total Job Openings	7,100	69.1	60.3

CENSUS – 1971 and 1981 (%)



1981 CENSUS – Main Industries of Employment (%)

Manufacturing (90)
- Clothing+Knitting (53)
- Leather (20)
- Textiles (9)

Trade (8)
- Retail Trade (4)
- Wholesale Trade (4)

Services (2)
- Personal Services (1)

Geographic Distribution of Employment – 1981 (%)

Newfoundland	0.1	Ontario	40.3
Prince Edward Island	0.1	Manitoba	7.5
Nova Scotia	0.7	Saskatchewan	0.4
New Brunswick	0.3	Alberta	1.7
Quebec	44.4	British Columbia	4.6

Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
– College (1981-86)	10	9.9
– University (1981-86)	0	0.0
Trade Vocational Schools (1983/84 only)	91	90.1

Pattern Making, Marking and Cutting Occupations: Textile, Fur and Leather Products

8551

Job Environment

This occupational unit includes designers, patternmakers, pattern markers, various types of cutters and punchers. Patternmakers draw sets of master patterns for garments, footwear and upholstery. Using their knowledge of fabric and manufacturing processes, they determine the number, shape and size of pattern parts and the required amounts of material. They draw detailed outlines of the patterns on paper and then add size, identification and style information. Pattern markings are transferred to the appropriate material or fabric by markers, prior to cutting, assembling and fastening or sewing. Typically, persons in these occupations work in a manufacturing environment and are often exposed to machinery noise.

Educational Background and Skills

The basic education level for a patternmaker is secondary school graduation. Completion of a community college or vocational school program normally lasting nine months to two years is considered an asset. The prospective patternmaker may also enter an apprenticeship program to obtain the necessary skills. An apprenticeship takes four years, unless the individual has previous related training or experience.

Nature of Supply

The primary sources of supply to this occupation are apprentices and graduates from the post-secondary education system. Immigrants and labour force re-entrants are also potential sources of supply.

Although the majority in these occupations are men, the number of women has been increasing. Most positions are in Quebec and Ontario.

The average age (37) for this classification has stayed relatively stable since 1971. A patternmaker's career lasts approximately 35 years, with entry normally starting between the ages of 20 and 24.

Market Conditions and Job Prospects

Current projections indicate employment will expand by 8% by 1995. Approximately 7,100 jobs will become available in the next eight years. Replacement openings will provide most of the job opportunities, as an above-average proportion of patternmakers are in the 54-plus age group.

Labour market conditions in the 1980s have been poorer than average and unemployment has been quite high since 1982. The situation is worse than in many other occupations, mainly because the clothing and textile industry, which employs 53% of patternmakers, has been increasingly losing its market share to foreign suppliers and has been attempting to remain competitive by reducing labour costs. The modernization of plant facilities, while boosting productivity, may further decrease employment opportunities. Economic conditions and cyclical factors have a great influence on employment in these occupations. While part-time work increased over the 1971 to 1981 period, it remained at one-half the rate experienced in the labour market as a whole.

New laser technology now being applied in the cutting of cardboard shoe patterns will certainly affect the skills required by cutters and may reduce the number of cutting positions.

Earnings

Typical 1986-1987 hourly wage rates for patternmakers, cutters and markers in apparel manufacturing:

Fabric Cutter (Lead Hand)	$8.11
Fabric Cutter	7.64
Marker (Lead Hand)	6.70
Marker	6.57[1]

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[1] Courtesy of the Amalgamated Clothing and Textile Workers Union.

Tailors and Dressmakers 8553

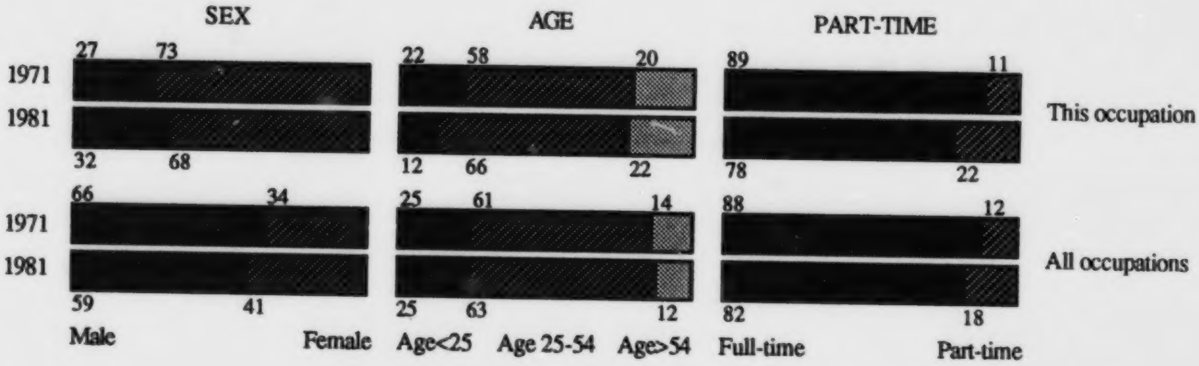
Employment Trends and Projections

	Employment 1981	Employment 1986	Employment 1995	Average Annual Growth Rate (%) 1971-81	Average Annual Growth Rate (%) 1981-86	Average Annual Growth Rate (%) 1987-95
This Occupation	14,400	15,400	17,100	−4.8	1.3	0.9
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation 1987-95	This Occupation % of 1987 Jobs	All Occupations % of 1987 Jobs
Net New Job Openings	1,200	7.7	11.1
Replacement Openings	9,800	61.9	49.2
Total Job Openings	11,000	69.6	60.3

CENSUS – 1971 and 1981 (%)



1981 CENSUS – Main Industries of Employment (%)

Trade (41) - Retail Trade (40)	Manufacturing (35) - Clothing+Knitting (31) - Textiles (2)	Services (22) - Personal Services (17) - Hospitals (2)

Geographic Distribution of Employment – 1981 (%)

Newfoundland	0.3	Ontario	37.3
Prince Edward Island	0.2	Manitoba	3.2
Nova Scotia	1.7	Saskatchewan	2.1
New Brunswick	2.5	Alberta	6.0
Quebec	39.2	British Columbia	7.1

Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
- College (1981-86)	0	0.0
- University (1981-86)	7	17.1
Trade Vocational Schools (1983/84 only)	34	82.9

Tailors and Dressmakers

8553

Job Environment

Occupations such as alterer, custom tailor and foundation garment fitter fall within this occupational category. Tailors make, alter and repair both made-to-measure and ready-to-wear clothing. Activities include designing, measuring, laying out, cutting, sewing, fitting, adjusting and finishing garments to the customer's body measurements. Many tailors and dressmakers are self-employed or work in small custom shops. In small shops, the tailor or dressmaker is involved in all functions, whereas in larger shops, there may be several tailors or dressmakers who perform specific and somewhat repetitive tasks. In other cases, a tailor may only do alterations.

The work environment is usually a pleasant, well-lit room where the noise from sewing machines is subdued. The hours of work are variable and depend on the requirements of the individual positions.

Educational Background and Skills

There are two ways of acquiring the skills to become a tailor or dressmaker. The first method requires completion of a community college program in fashion design that emphasizes garment production or tailoring. The course normally includes a period of on-the-job training. The second method is through an apprenticeship lasting three to four years. Apprentices must be at least 16 years of age and have a minimum Grade 10 education. They may have to attend a community college or vocational school for certain periods during the apprenticeship.

Nature of Supply

The formal post-secondary education system and the apprenticeship programs are the two primary sources of supply for this occupation. Immigrants and labour force re-entrants also augment the supply.

Over the 1971 to 1981 period, the average age in this occupation increased from 40 to 43 years. This reflects the increased number of tailors and dressmakers in the 25-to-54 and the over-54 age groups. A typical career in this occupation normally spans 30 to 35 years, with entrance occurring between the ages of 20 and 24. Most individuals in this occupation are women and work in Quebec and Ontario.

Market Conditions and Job Prospects

Current projections indicate employment growth will be less than average in the forecast period. Approximately 1,100 jobs should become available in the next eight years. A large number of these will be replacement openings, as the proportion of tailors and dressmakers in the 54-plus age group is twice as large as for all occupations.

Tailors and dressmakers are concentrated in the trade, manufacturing and services sectors and particularly in retail trade and the clothing and knitting industries. Most employment opportunities will be in the retail trade, as favourable interest rates are expected to sustain consumer spending throughout the projection period. The general economic environment and seasonal factors moderately affect employment in these occupations.

Tailors and dressmakers have faced unfavourable labour market conditions throughout the 1980s. They have fared poorly relative to other occupations, as indicated by the above-average ratio of unemployment insurance claimants to employment stock. Part-time employment doubled over a 10-year period. In 1981, part-time employment for tailors and dressmakers was above the national average.

Many manufacturers of men's clothing are now using computer-driven lasers to cut cloth for suits. This innovation may alter the skills required by tailors and dressmakers in factory settings.

Earnings

Earnings in this occupation are influenced by the type of work performed, experience and the employing establishment. Factory workers are paid on a piece-work basis or, if they are unionized, their wages are negotiated through collective bargaining agreements.

Labour Canada reported the following 1985 average hourly wage rates and ranges (1st to 9th decile[1]) in the men's and women's clothing industries.

Men's clothing	$9.35	$7.03 – $12.83
Women's clothing	$8.51	$5.25 – $11.23

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[1] This means that 10% earned less than the minimum reported and 10% earned more than the maximum.

Motor Vehicle Mechanics and Repairers

8581

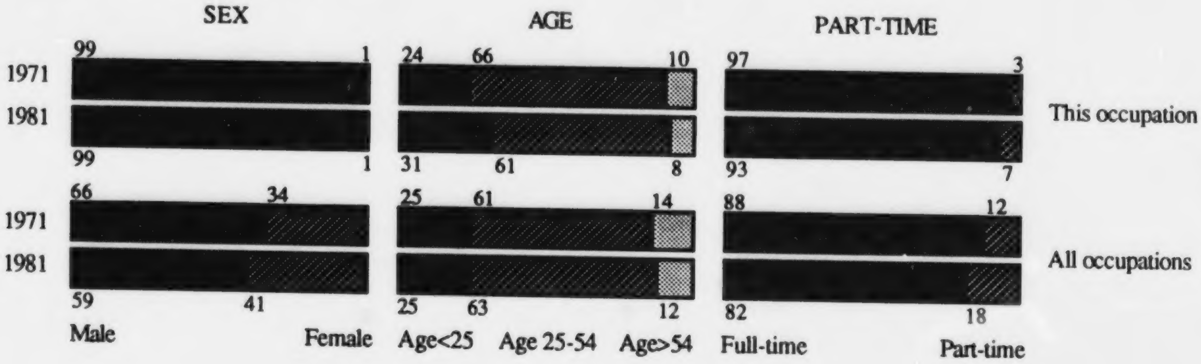
Employment Trends and Projections

	Employment			Average Annual Growth Rate (%)		
	1981	1986	1995	1971-81	1981-86	1987-95
This Occupation	144,700	158,400	176,400	2.5	1.8	1.1
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation		All Occupations
	1987-95	% of 1987 Jobs	% of 1987 Jobs
Net New Job Openings	14,700	9.1	11.1
Replacement Openings	63,200	39.1	49.2
Total Job Openings	77,900	48.1	60.3

CENSUS - 1971 and 1981 (%)



1981 CENSUS - Main Industries of Employment (%)

Trade (76)	Trans + Stor + Comm + Util (9)	Manufacturing (7)
- Retail Trade (71)	- Misc Transport (5)	- Motor Veh + Trls + Parts (3)
- Wholesale Trade (5)	- Urban Transit (2)	- Metal Fabricating (1)

Geographic Distribution of Employment - 1981 (%)

Newfoundland	1.7	Ontario	35.2
Prince Edward Island	0.6	Manitoba	4.1
Nova Scotia	3.2	Saskatchewan	3.8
New Brunswick	3.0	Alberta	10.6
Quebec	26.3	British Columbia	11.2

For further information, contact:

Automotive Industries Association of Canada
1272 Wellington St.
Ottawa, Ontario K1Y 3A7
(613) 728-5821

Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
- College (1981-86)	251	19.3
- University (1981-86)	78	6.0
Trade Vocational Schools (1983/84 only)	972	74.7

Motor Vehicle Mechanics and Repairers

8581

Job Environment

This occupational group consists of motor vehicle mechanics, truck-trailer repairers, snowmobile repairers, mechanical unit repairers and engine repairers. They work for car dealerships, independent garages or specialty services, repairing and servicing gasoline or diesel-powered motor vehicles. Using both common and specialized tools and equipment, they test, diagnose, disassemble, replace parts and assemblies, tune, adjust and make body repairs. The work is indoors, where exposure to noise, vibration, liquids, fumes and odours is controlled by safety regulations.

Educational Background and Skills

The increasing complexity of motor vehicles now requires motor vehicle mechanics/technicians to be more highly trained and to keep abreast of new developments in the field. In all provinces except Quebec, entry into the occupation occurs through an apprenticeship program lasting four to five years and including a period of vocational school training. Apprentices must be 16 and have Grade 9 or Grade 10 (depending on the province) or the equivalent. In some provinces, apprentices who have graduated from the mechanical engineering or auto mechanics vocational programs are allowed credit hours on their apprenticeship. Future mechanics should have a good grasp of reading and writing, a basic understanding of electronics, good hearing, eyesight and dexterity.

Nature of Supply

The majority of new entrants to this field are secondary school and vocational school graduates. The field offers the possibility of moving into positions such as supervisor, service representative, service manager, technical sales representative or specialized mechanic.

Almost all mechanics are men. Their average age is lower than the average for the whole labour force, 31% being under 25. The geographical distribution of workers in this group is similar to that of the labour force in general.

Market Conditions and Job Prospects

Employment growth in this occupation was below average in the 1970s and above average during the first half of the 1980s. Average growth up until 1995 is projected. Approximately 77,900 jobs will become available in the next eight years. Employment requirements resulting from attrition will be below-average as suggested by the low proportion of mechanics in the 54-plus age group, although they still account for most job openings.

Three-quarters of motor vehicle mechanics and technicians are employed in the trade sector, the majority of whom are concentrated in retail trade. Short-term employment prospects in retail trade are fair, as favourable interest rates and growing incomes are expected to sustain consumer spending. Current unemployment rates are average, an improvement over rates in the recent past, which were consistently higher than average. Employment is moderately affected by economic conditions and seasonal factors. A modest unemployment peak occurs during the winter.

The demand for skilled mechanics continues to grow as the vehicle population in Canada increases. Even when sales of new vehicles drop off, the volume of service work remains and may even increase, because older vehicles are kept running longer. However, with newer vehicles requiring less maintenance and repair, the demand for mechanics may be lessened. Skilled auto mechanics are also in demand in the field of fleet maintenance.

Because of new developments in engines, transmissions and suspension systems, and the growing use of electronic components, the mechanic's job is changing into that of a technician, with emphasis on vehicle diagnosis. This will increase the demand for automotive mechanics with training in propane and electronic fuel injection engines, on-board computers and electronics.

Earnings

Pay ranges vary greatly according to province. In many shops, mechanics are paid a flat rate, usually a percentage of the labour charge. Starting rates vary with the area of work.

In 1987, wages in Vancouver ranged from $13.35 to $17.59 an hour for union employees and from $8.00 to $15.00 an hour for non-union workers. Unionized auto body repairers earned between $13.42 and $17.59 an hour and non-union workers earned $7.43 to $14.73 an hour. In Toronto, auto mechanics' average weekly salaries ranged from $377 to $403.

The National Graduate Survey reported 1984 average annual earnings of $16,880 for 1982 community college graduates working in this occupational area two years after graduation.

Aircraft Mechanics and Repairers

8582

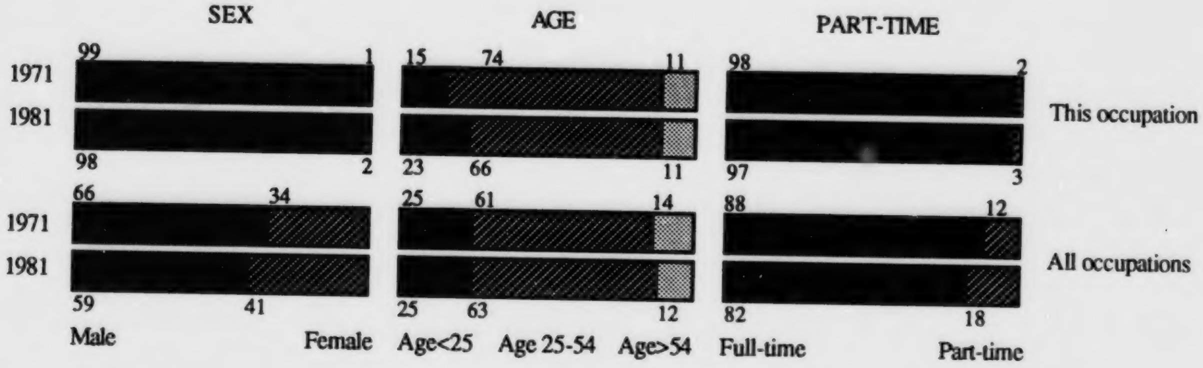
Employment Trends and Projections

	Employment			Average Annual Growth Rate (%)		
	1981	1986	1995	1971-81	1981-86	1987-95
This Occupation	10,900	10,300	11,000	3.9	-1.1	0.6
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation		All Occupations
	1987-95	% of 1987 Jobs	% of 1987 Jobs
Net New Job Openings	500	4.9	11.1
Replacement Openings	4,500	43.1	49.2
Total Job Openings	5,000	48.1	60.3

CENSUS – 1971 and 1981 (%)



1981 CENSUS – Main Industries of Employment (%)

Trans+Stor+Comm+Util (63) - Air Transport (63)	Manufacturing (23) - Aircraft+Parts (22)	Public Administration (9) - Federal Admin (8)

Geographic Distribution of Employment – 1981 (%)

Newfoundland	2.6	Ontario	26.9
Prince Edward Island	0.6	Manitoba	7.1
Nova Scotia	3.0	Saskatchewan	1.0
New Brunswick	0.9	Alberta	8.4
Quebec	30.9	British Columbia	17.5

Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
- College (1981-86)	112	58.0
- University (1981-86)	14	7.3
Trade Vocational Schools (1983/84 only)	67	34.7

Aircraft Mechanics and Repairers

8582

Job Environment

Aircraft-engine expert, carburetor mechanic, helicopter mechanic, and jet repairer are examples of occupations in this group. Aircraft mechanics perform scheduled maintenance and repair on all aircraft systems and equipment, checking off a list of functions before each flight, in accordance with air transport regulations. A licensed aircraft maintenance engineer (AME) certifies that the aircraft, engines and components are fit for flight. These operations, which are carried out mostly in hangars, expose workers to noise, vibration, liquids, fumes and other hazards requiring the use of safety equipment and clothing. A five-day, 40-hour work week including shift work and overtime is normal.

Educational Background and Skills

Most firms hire individuals with minimum Grade 12 education and preferably a technical knowledge of airplanes. Recruits must undertake a three-year apprenticeship providing a combination of classroom and on-the-job training. Upon completion of training, they may apply for an aircraft maintenance engineer's licence. Applicants who have taken Transport Canada-approved programs in aircraft mechanics from community colleges or institutes of technology are preferred over those holding only a high-school diploma. College programs are of two to three years' duration. Desirable qualities for a mechanic are an above-average mechanical aptitude, attentiveness to detail, good eyesight and hearing.

Nature of Supply

The major sources of new supply are persons leaving the military, graduates from the formal education system and persons re-entering the labour force who meet the basic requirements. Immigrants also augment the supply. Major fields of study at the college level leading to this occupation are aircraft mechanics, transportation technologies and mechanical engineering technologies. Preliminary data on movements between occupations indicate that movement out of this occupation exceeds movement into the occupation, suggesting that this is an entry-level position for many. Qualified workers may advance to supervisory positions.

Almost all aircraft mechanics are men. The age structure of the occupation changed between 1971 and 1981, as the proportion of people under 25 years of age increased and the number in the 25 to 54 age category declined. The average age of the occupation (36) decreased by two years. Most mechanics work in Quebec (31%), Ontario (27%) and British Columbia (18%).

Market Conditions and Job Prospects

Employment growth is projected at 5%, which is below that expected throughout the economy. This projection is in keeping with observed growth trends in the early 1980s, which were also slower-than-average. A total of 5,000 job openings will become available in the next eight years. According to the age structure of this occupation, replacement openings should outnumber new job openings, although only a moderate number will be attributable to deaths and retirements.

Labour market conditions for aircraft mechanics improved in 1986 over the preceding few years, but they are still not as favourable as they were prior to the 1981-1982 recession.

Employment of aircraft mechanics is concentrated in the air transport and the aircraft and parts manufacturing industries, and therefore varies with changing conditions in the overall economic climate. Seasonal factors affecting employment are slight, although a modest employment peak occurs during the warm months of the year. Nearly all work in this occupation is full-time. However, increased competition caused by airline deregulation has led to mergers and a resulting demand for part-time workers.

Earnings

In 1985, aircraft instrument mechanics' wages ranged from $13.04 to $14.39 an hour, while the average rate was $13.76 an hour. Aircraft engine mechanics earned from $10.04 to $14.08 an hour, the average being $12.72.[1]

Reported 1987 earnings for aircraft maintenance mechanics ranged from $12.00 to $15.21 an hour, while apprentices earned from $7.66 to $9.67 an hour. In Vancouver, unionized aircraft mechanics earned from $14.14 to $16.35 an hour.

The National Graduate Survey reported 1984 average annual earnings of $19,376 for 1982 community college graduates working in this occupation.

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[1] Labour Canada, *Wages and Working Conditions in Canada*, 1985.

Rail Transport Equipment Mechanics and Repairers 8583

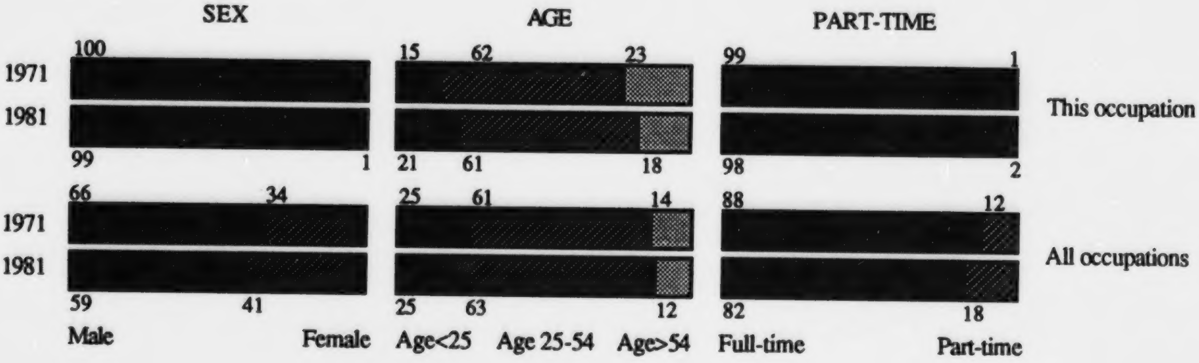
Employment Trends and Projections

	Employment			Average Annual Growth Rate (%)		
	1981	1986	1995	1971-81	1981-86	1987-95
This Occupation	11,800	9,600	10,200	1.1	-4.1	0.7
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation		All Occupations
	1987-95	% of 1987 Jobs	% of 1987 Jobs
Net New Job Openings	600	6.0	11.1
Replacement Openings	6,000	62.5	49.2
Total Job Openings	6,600	68.4	60.3

CENSUS - 1971 and 1981 (%)



1981 CENSUS - Main Industries of Employment (%)

Trans + Stor + Comm + Util (86)	Manufacturing (10)	Mining (2)
- Rail Transport (82)	- Railroad Rolling Stk (8)	- Mining-Metal Mining (1)
- Urban Transit (3)		

Geographic Distribution of Employment - 1981 (%)

Newfoundland	0.7	Ontario	23.3
Prince Edward Island	0.1	Manitoba	17.4
Nova Scotia	2.0	Saskatchewan	3.7
New Brunswick	6.7	Alberta	9.7
Quebec	27.1	British Columbia	8.9

Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
- College (1981-86)	3	5.1
- University (1981-86)	17	28.8
Trade Vocational Schools (1983/84 only)	39	66.1

For further information, contact:

Employment Services
Canadian Pacific
Room 108
Union Station
Toronto, Ontario M5J 1E8
(416) 863-8038

Rail Transport Equipment Mechanics and Repairers

8583

Job Environment

Brake mechanics, compressor repairers and switch repairers repair and service railway rolling stock and related equipment. Railroad mechanics test, adjust and repair items such as compressors, valves, bearings, traction motors, brakes, wheels, couplers and other mechanical assemblies on trains, railroad rolling stock, subway cars and related equipment. A five-day work week of 35 to 40 hours is normal. Shift work and overtime may be part of the job.

Educational Background and Skills

Training for this occupation is generally through an apprenticeship program or on-the-job training provided by the employer. Grade 10 is required to enter the training program, but employers usually prefer applicants who have completed secondary school. The length of the apprenticeship depends on the specialty (car repair, air-valve repair, subway-car mechanics) varying from six months to four years. New skills, such as the ability to read and create the printouts and diagrams involved in electrical/electronic technologies, are increasingly required of mechanics.

Nature of Supply

The primary source of new supply to this field is labour force re-entrants meeting the basic requirements. Some of these may have received previous vocational training in mechanical engineering technologies. Occupations in this category provide opportunities for advancement into positions requiring more specialized skills and additional responsibilities.

Preliminary data indicate that movement out of this area marginally exceeds the flow of people into these occupations. The average age declined from 43 to 38 between 1971 and 1981, as the proportion of workers under 25 increased and the number in the 55-plus age category declined. In general, persons enter the occupation between the ages of 20 and 29 and begin to leave between 60 and 64, for a career length of 35 years. All except 1% of mechanics were men in 1981, and two out of every three worked in Quebec, Ontario and Manitoba.

Market Conditions and Job Prospects

The employment of rail mechanics is, not surprisingly, concentrated in the rail transport industry. Short-term employment opportunities for rail mechanics are marginal, based on the outlook for the rail transport sector. Improvements in grain tonnage and the completion of major rail construction projects in the West will provide some growth in the next few years. Prevailing economic conditions and fluctuations in the business cycle strongly affect employment in this occupation. Seasonal factors also influence employment, the third quarter being a period of relatively low employment.

Current projections indicate employment will grow by nearly 6% over the next eight years, a rate well below the national average but in keeping with long-term trends in this occupation.

Since projected employment growth is slow, and an above-average proportion of the work force is over 54, retirements and deaths should create the majority of job openings over the projection period.

Earnings

Reported earnings for railroad mechanics in 1986 were $14.19 an hour; body repairers earned $14.19 an hour and heavy duty equipment mechanics earned $591.79 a week. Wages for a maintenance-of-way equipment maintainer (grade one) were $14.29 an hour, while a grade two maintainer received $13.21 an hour.

The National Graduate Survey reported 1984 average annual earnings of $25,000 for 1982 graduates who had been working in this occupation two years.

Industrial, Farm and Construction Machinery Mechanics and Repairers

8584

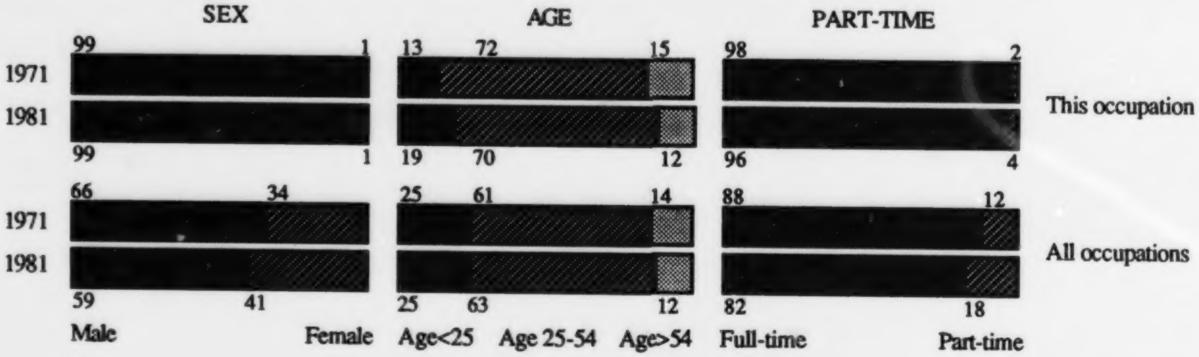
Employment Trends and Projections

	Employment			Average Annual Growth Rate (%)		
	1981	1986	1995	1971-81	1981-86	1987-95
This Occupation	102,300	94,500	105,500	6.3	-1.6	1.3
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation		All Occupations
	1987-95	% of 1987 Jobs	% of 1987 Jobs
Net New Job Openings	10,200	10.7	11.1
Replacement Openings	39,400	41.3	49.2
Total Job Openings	49,500	52.0	60.3

CENSUS - 1971 and 1981 (%)



1981 CENSUS - Main Industries of Employment (%)

- Manufacturing (47)
  - Primary Metals (7)
  - Pulp+Paper (7)
  - Wood (6)
- Trade (16)
  - Wholesale Trade (14)
  - Retail Trade (2)
- Mining (13)
  - Mining-Metal Mining (8)
  - Mining-Non-Metal (2)
  - Mining-Petroleum+Gas (1)

Geographic Distribution of Employment - 1981 (%)

Newfoundland	2.0	Ontario	33.8
Prince Edward Island	0.3	Manitoba	3.4
Nova Scotia	2.9	Saskatchewan	4.1
New Brunswick	2.7	Alberta	10.9
Quebec	24.6	British Columbia	14.8

Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
- College (1981-86)	228	20.8
- University (1981-86)	14	1.3
Trade Vocational Schools (1983/84 only)	853	77.9

Industrial, Farm and Construction Machinery Mechanics and Repairers

8584

Job Environment

Construction equipment repairers, farm-machinery repairers, sewing machine fixers and diesel mechanics are typical occupations in this group, which contains a diverse list of occupational titles. Persons working in this category are generally referred to as industrial mechanics or millwrights, but their individual titles vary according to their specialization.

Using blueprints and precision tools, industrial mechanics assemble, install, repair and maintain machinery and mechanical equipment including those involving hydraulics, pneumatics and electronics. They may also make foundations, build scaffolds and align and test equipment. While some activities occur in industrial and commercial construction, work is usually indoors at industrial plants or in commercial or institutional buildings, where noise, vibrations and other hazards are common to the job. The work week normally consists of five days or 35 to 40 hours, and includes occasional periods of shift work and overtime.

Educational Background and Skills

For most occupations in this group, individuals must complete an apprenticeship of three to five years (depending on the province), which combines on-the-job and formal theoretical training. Grade 10 is the usual minimum qualification for this program. After training, some provinces require compulsory certification. Good interpersonal skills, a mechanical aptitude, dexterity and patience are other desirable qualifications.

Nature of Supply

The most significant sources of new supply to this occupation are secondary school students and persons re-entering the labour force who enroll in an apprenticeship program. Other sources of supply are college and vocational school graduates from programs in heavy equipment mechanics, welding technologies and other mechanical engineering technologies. Opportunities for advancement to positions offering more responsibility arise as the employee specializes and gains experience.

Men, who have traditionally dominated these occupations, still comprised 99% of the group in 1981. The average age declined marginally between 1971 and 1981. The majority of industrial mechanics enter the occupation between the ages of 18 and 29 and begin to leave between 58 and 64 years of age, for an average career span of 35 to 40 years. The geographical distribution of millwrights closely parallels distribution of the labour force as a whole.

Market Conditions and Job Prospects

Employment is expected to grow at an average rate in the next eight years, according to present projections. Approximately 49,500 jobs will become available. Most of these vacancies will be replacement openings, as net creation of new jobs is expected to be moderate.

In 1986, labour market conditions for industrial mechanics were about average. Although they have slightly improved in the last few years, they are not as favourable as they were prior to the 1981-1982 recession. Current rates of unemployment are on a par with the labour force at large.

Industrial mechanics are dispersed throughout all sectors of the economy, with concentrations occurring in the manufacturing and mining trades. Economic conditions affecting the goods producing industries may influence the hiring patterns in this category, but seasonal factors have little impact. Part-time work is insignificant in this occupational area.

Earnings

In 1987, heavy-duty equipment mechanics in Vancouver earned between $12.16 and $19.13 per hour in union jobs and $11.00 to $18.00 in non-union positions. Millwrights in Vancouver earned $13.95 to $19.85 (union) and $12.00 to $16.00 per hour (non-union). In Calgary, heavy-equipment mechanics earned from $13.10 to $17.20 an hour; journeyperson diesel mechanics earned between $12.70 and $17.20 an hour; and millwrights earned $12.00 to $20.00 an hour. In Toronto, the average weekly rates for industrial mechanics ranged from $267 to $487.

The following table[1] provides 1987 average union wage rates for millwrights in the construction industry.

Manitoba	$19.20
Ontario	18.95
Quebec	18.88
New Brunswick	18.37
Nova Scotia	18.70

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[1] Canadian Construction Association, 1987.

Business and Commercial Machine Mechanics and Repairers 8585

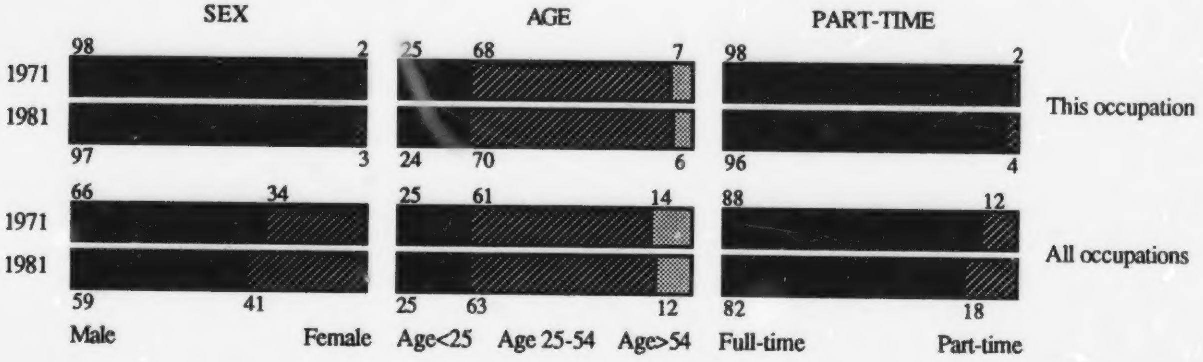
Employment Trends and Projections

	Employment 1981	Employment 1986	Employment 1995	Average Annual Growth Rate (%) 1971-81	Average Annual Growth Rate (%) 1981-86	Average Annual Growth Rate (%) 1987-95
This Occupation	10,100	10,600	11,600	2.8	0.9	1.2
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation 1987-95	This Occupation % of 1987 Jobs	All Occupations % of 1987 Jobs
Net New Job Openings	1,100	10.2	11.1
Replacement Openings	4,500	42.7	49.2
Total Job Openings	5,600	52.8	60.3

CENSUS – 1971 and 1981 (%)



1981 CENSUS – Main Industries of Employment (%)

Trade (45)	Manufacturing (25)	Services (20)
- Wholesale Trade (41)	- Machinery (12)	- Business Services (15)
- Retail Trade (4)	- Food + Beverages (2)	- Misc Services (4)
	- Printing + Publishing (1)	

Geographic Distribution of Employment – 1981 (%)

Newfoundland	1.4	Ontario	48.4
Prince Edward Island	0.3	Manitoba	3.7
Nova Scotia	2.4	Saskatchewan	2.4
New Brunswick	2.7	Alberta	9.6
Quebec	18.2	British Columbia	10.7

Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
- College (1981-86)	120	58.3
- University (1981-86)	0	0.0
Trade Vocational Schools (1983/84 only)	86	41.7

Business and Commercial Machine Mechanics and Repairers 8585

Job Environment

Adding machine servicer, photocopy machine servicer and typewriter mechanic are examples of occupations in this classification. Repairing business machines involves disassembling them, replacing broken parts, making adjustments and reassembling the equipment. Office machine servicers also maintain and inspect equipment during routine calls, which requires some travel. When necessary, extensive repairs are done at a central shop by qualified repairmen. The work week is usually five days or 35 to 40 hours long.

Educational Background and Skills

Business machine repairers must have completed secondary school. Employers prefer those who also have trade school or community college courses in mechanical, electrical or electronic technologies. Because of the increasing complexity of commercial machines, a basic knowledge of electronics is particularly desirable. As machine specifications vary, employers usually train new recruits in the machines specific to their firms. Good manual dexterity, good vision and an ability to understand mechanical processes are desirable characteristics.

Nature of Supply

Persons re-entering the labour force who meet the minimum educational requirement represent an important source of new supply. Students graduating from vocational schools, community colleges and private technical institutes in the fields of electrical/electronic engineering technologies and mechanical engineering technologies are another important source of new supply. Opportunities for advancement exist for persons willing to train to become more skilled servicers, sales representatives or managers, or to start their own business.

The occupation is dominated by men, who compose 97% of the group. Neither the average age (33) nor the age structure has changed since 1971.

Market Conditions and Job Prospects

Employment opportunities for business machine mechanics, who are mainly employed in the trade manufacturing and services sectors, are moderate in the short term. Employment growth was modest in the 1970s and stagnant in the early 1980s. Current projections suggest employment will increase by approximately 10% in the forecast period, which approximates the average expected for all occupations. Nearly 5,600 jobs will become available in the next eight years, of which most will be replacement openings.

Business machine mechanics fared well in the labour market throughout the 1980s, despite slow employment growth. Unemployment rates for this occupational group have been consistently lower than for the labour force at large.

Earnings

Salaries for office machine servicers depend on the organizations for which they work and on the type of machine they service. Since persons employed by independent service organizations repair and service a variety of machines, their earnings tend to be higher than those of repairers employed by manufacturers or distributors of a particular brand of equipment. Also, typewriter and adding machine servicers tend to earn less than those working on more sophisticated electronic machines. On average, servicers earn $18,000 to $21,000 per year. The 1986 hourly rate for non-union office machine repairers in Vancouver ranged from $7.00 to $12.00 per hour. Union employees earned $12.60 per hour on average.

Watch and Clock Repairers 8587

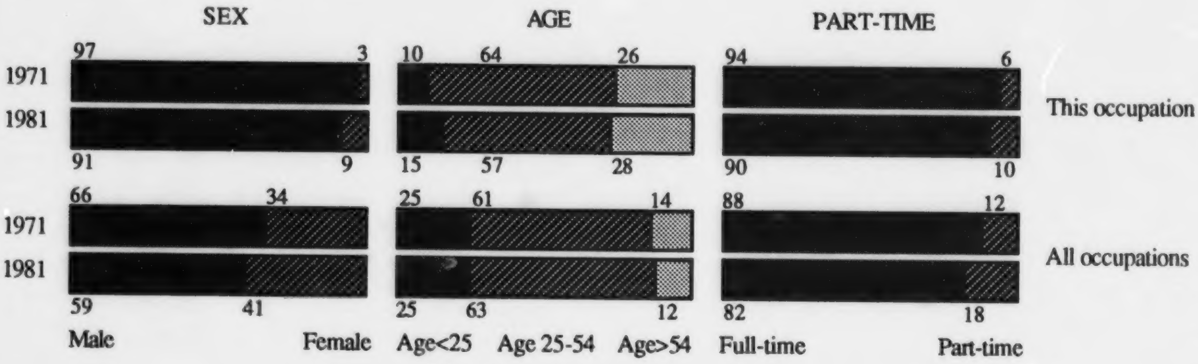
Employment Trends and Projections

	Employment 1981	Employment 1986	Employment 1995	Average Annual Growth Rate (%) 1971-81	Average Annual Growth Rate (%) 1981-86	Average Annual Growth Rate (%) 1987-95
This Occupation	2,100	2,200	2,400	−1.7	1.0	1.1
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation 1987-95	This Occupation % of 1987 Jobs	All Occupations % of 1987 Jobs
Net New Job Openings	200	8.9	11.1
Replacement Openings	1,400	62.7	49.2
Total Job Openings	1,600	71.6	60.3

CENSUS – 1971 and 1981 (%)



1981 CENSUS – Main Industries of Employment (%)

Trade (57)
- Retail Trade (50)
- Wholesale Trade (7)

Trans + Stor + Comm + Util (19)
- Electric Power (8)
- Gas Distribution (6)
- Water + Oth Utilities (3)

Manufacturing (12)
- Misc Manufacturing (7)
- Metal Fabricating (2)
- Electrical Products (1)

Geographic Distribution of Employment – 1981 (%)

Newfoundland	2.2	Ontario	45.7
Prince Edward Island	0.5	Manitoba	5.9
Nova Scotia	2.7	Saskatchewan	4.0
New Brunswick	3.2	Alberta	8.1
Quebec	15.1	British Columbia	12.1

Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
– College (1981-86)	30	100.0
– University (1981-86)	0	0.0
Trade Vocational Schools (1983/84 only)	0	0.0

Watch and Clock Repairers

8587

Job Environment

Typical occupations in this unit are clock repairers, speedometer repairers, meter mechanics and watchmakers. In each of these jobs the repairer disassembles, cleans, services and reassembles finely machined and delicate parts. The work is painstakingly detailed and requires patience coupled with precise hand movements. A watch repairer reconditions, adjusts, repairs and oils timepieces, sitting at a bench most of the time. A five-day work week of 35 to 40 hours is normal.

Educational Background and Skills

There are two ways of entering these occupations: through an apprenticeship of three to five years, including a session of formal training, or through a college program. Training in a career program lasts from one to three years, depending on the institution. In Ontario, watchmakers require a provincial licence. Important characteristics in these occupations are manual dexterity, precision, attention to detail, and a mechanical aptitude.

Nature of Supply

Since training can be acquired on the job or through schooling, persons re-entering the labour force as well as graduates from career programs in jewellery repair are the most important sources of new supply to this occupation. Immigration has also provided new occupational supply over the years. Opportunities exist for promotion into positions such as head watchmaker, specialist watchmaker or self-employed watchmaker. Preliminary data indicate that movement into other occupations exceeds the influx from these occupations. For many then, positions in this category represent entry-level jobs.

Although this field is still dominated by men, the number of women is increasing — their representation went up from 3% to 9% between 1971 and 1981. During the same period, numbers swelled in the 55-plus and the 15 to 24 age groups. The average age (42) is markedly higher than for the labour force as a whole.

Market Conditions and Job Prospects

Based on the outlook for trade, current projections indicate employment will grow at an average pace in the next eight years. Many job opportunities will be replacement openings left by the above-average proportion of workers now in the 54-plus age group.

Labour market conditions have improved for this occupation, although they are not as favourable as prior to the 1981-1982 recession. Lower-than-average rates of unemployment indicate conditions are better than for most other occupations.

Watch repairers work mainly in the trade sector and, to a lesser extent, in the utilities and manufacturing sectors. In wholesale trade, where this occupation is most concentrated, employment opportunities improved after the 1981-1982 recession, owing to increased consumer spending. Current favourable interest rates are expected to sustain consumer demand throughout the projection period. Long-term prospects for this occupation, however, may be moderately affected by changing economic conditions. Because dependable, electronically driven timepieces have become cheaper to replace than to repair, the employment growth potential for this occupational group has decreased. In fact, the employment projections listed here may be slightly overstated. The incidence of part-time work has increased, although in 1981 it was about one-half the rate recorded for all occupations. Work in these occupations is generally stable throughout the year.

Earnings

Watchmakers' incomes vary according to their experience, location and the type of establishment in which they work. In 1986, new watchmakers earned an average weekly salary of $250 to $300, while more experienced ones earned $25,000 to $35,000 per year.

Precision Instrument Mechanics and Repairers 8588

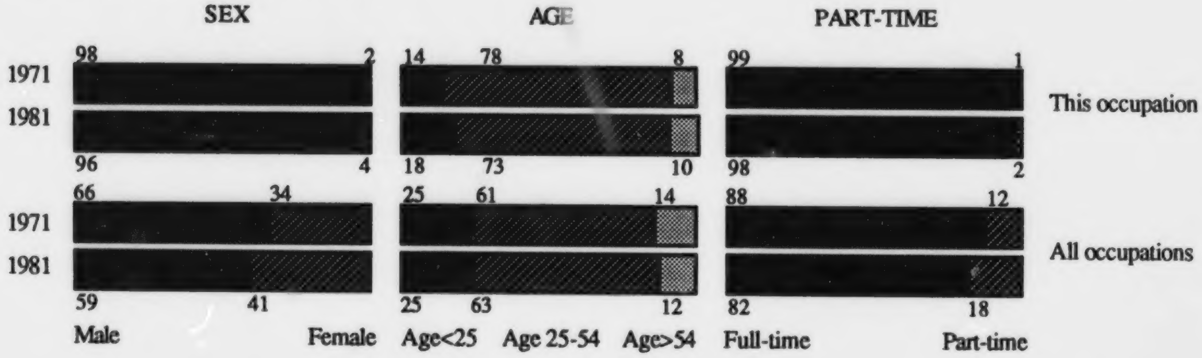
Employment Trends and Projections

	Employment			Average Annual Growth Rate (%)		
	1981	1986	1995	1971-81	1981-86	1987-95
This Occupation	4,600	4,500	4,900	5.2	−0.5	1.2
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation		All Occupations
	1987-95	% of 1987 Jobs	% of 1987 Jobs
Net New Job Openings	400	9.6	11.1
Replacement Openings	1,700	36.9	49.2
Total Job Openings	2,100	46.5	60.3

CENSUS – 1971 and 1981 (%)



1981 CENSUS – Main Industries of Employment (%)

Manufacturing (48)	Trade (16)	Services (14)
- Misc Manufacturing (11)	- Wholesale Trade (13)	- Misc Services (6)
- Pulp+Paper (7)	- Retail Trade (3)	- Business Services (4)
- Primary Metals (6)		- Hospitals (3)

Geographic Distribution of Employment – 1981 (%)

Newfoundland	0.7	Ontario	44.8
Prince Edward Island	0.1	Manitoba	3.8
Nova Scotia	3.5	Saskatchewan	2.5
New Brunswick	1.6	Alberta	12.8
Quebec	16.5	British Columbia	13.2

Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
- College (1981-86)	124	100.0
- University (1981-86)	0	0.0
Trade Vocational Schools (1983/84 only)	0	0.0

Precision Instrument Mechanics and Repairers

8588

Job Environment

This occupation includes camera repairers, gyroscopic-instrument mechanics, and surgical-instrument repairers. These people repair, overhaul, and calibrate precision devices used to measure and record such characteristics as temperature and density in the control or automation of industrial processes. Their work involves installing instruments in control panels and aircrafts and connecting them to hydraulic, pneumatic, and electrical lines; calibrating instruments for accuracy; inspecting and testing instruments to isolate faults; and disassembling, cleaning and replacing parts and reassembling instruments. Most instrument establishments are clean, well-lit, and often air-conditioned. However, technicians who service instruments that control manufacturing processes may be exposed to noisy, dusty or warm conditions. A five-day work week of 35 to 40 hours is normal. Some shift work and overtime in the evenings and on weekends may be necessary.

Educational Background and Skills

To become a precision instrument mechanic and repairer, individuals must take an apprenticeship program lasting four or five years, that offers a combination of on-the-job training and formal schooling. A minimum of Grade 10 up to Grade 12 is required to enter the apprenticeship. In provinces where such a program does not exist, secondary school graduation is necessary. Technicians and mechanics in this occupation must have extensive knowledge of the physical sciences as well as some familiarity with electrical, electronic and mechanical engineering principles. In some firms, a college diploma may be required. Employers provide training to familiarize new employees with the firm's products and instruments. Important qualities in this occupation include a predisposition for detail, as well as the ability to give and receive instructions and to pay meticulous attention to safety procedures and control systems.

Nature of Supply

Secondary school graduates entering the apprenticeship program and graduates of vocational schools, private technical institutes and community colleges are the primary sources of new occupational supply. Community college graduates who have worked in this occupation for two years after graduation are found to have qualifications in instrumentation and in electrical and electronic technologies. With the speed of new development in this field, opportunities are plentiful for mechanics interested in moving up to positions with more responsibility. Preliminary data indicate that the number of people leaving this occupation for others exceeds the number coming from other jobs, which suggests that for many, this occupation represents an initial position in their career.

Most precision instrument mechanics are men, a situation that did not change significantly between 1971 and 1981. The average age (36) is similar to the average age for the whole labour force; most workers are in the 25 to 54 age category.

Market Conditions and Job Prospects

Employment for instrumentation mechanics is concentrated in the manufacturing sector and, to a lesser degree, the trade and services sectors. Future employment opportunities are favourable, based on the outlook in these areas. Employment prospects are moderately affected by economic conditions and not at all by seasonal factors.

Long-term rapid employment growth was interrupted by recession-related losses in the early 1980s. Future employment growth is projected to be about average. Approximately 2,100 jobs will become available in the next eight years, of which replacement openings will form the majority, even though a below-average proportion of industrial mechanics are in the 54-plus age group.

Labour market conditions have improved in recent years, although they are not as favourable as prior to the 1981-1982 recession. Current unemployment rates are about average. With the advent of computer technology, instrument mechanics have increasingly had to familiarize themselves with digital technology in addition to analog technology.

Earnings

Depending on the industry, the type of work and the geographical region, precision instrument technicians and mechanics may earn between $22,000 and $31,000 a year. Mechanics tend to earn slightly less than technicians.

The National Graduate Survey reported 1984 average annual earnings of $25,993 for 1982 community college graduates working in these occupations.

Other Mechanics and Repairers 8589

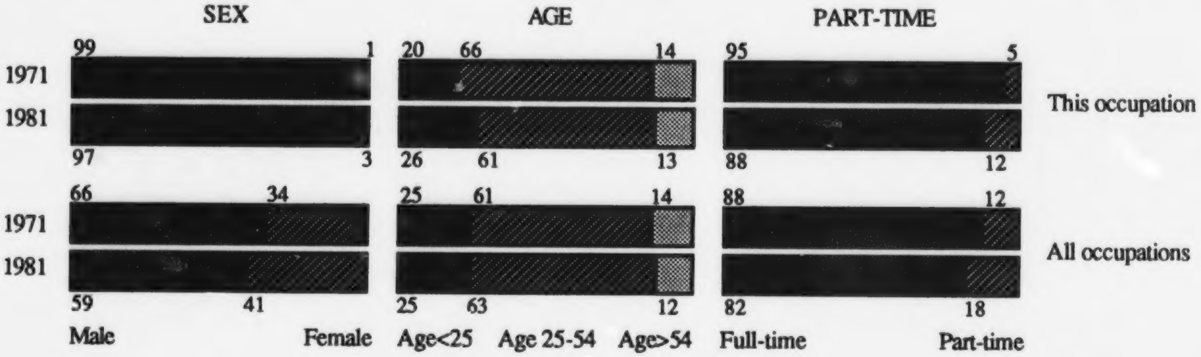
Employment Trends and Projections

	Employment 1981	Employment 1986	Employment 1995	Average Annual Growth Rate (%) 1971-81	Average Annual Growth Rate (%) 1981-86	Average Annual Growth Rate (%) 1987-95
This Occupation	20,100	20,800	23,600	1.1	0.7	1.4
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation 1987-95	This Occupation % of 1987 Jobs	All Occupations % of 1987 Jobs
Net New Job Openings	2,400	11.4	11.1
Replacement Openings	10,300	48.7	49.2
Total Job Openings	12,700	60.2	60.3

CENSUS - 1971 and 1981 (%)



1981 CENSUS - Main Industries of Employment (%)

Trade (31)
- Retail Trade (21)
- Wholesale Trade (10)

Manufacturing (27)
- Metal Fabricating (4)
- Pulp+Paper (4)
- Food+Beverages (4)

Services (20)
- Misc Services (11)
- Recreation (4)
- Hospitals (1)

Geographic Distribution of Employment - 1981 (%)

Newfoundland	1.3	Ontario	44.5
Prince Edward Island	0.5	Manitoba	3.9
Nova Scotia	3.7	Saskatchewan	3.9
New Brunswick	2.7	Alberta	11.3
Quebec	15.8	British Columbia	12.1

Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
- College (1981-86)	37	9.8
- University (1981-86)	153	40.5
Trade Vocational Schools (1983/84 only)	188	49.7

Other Mechanics and Repairers

8589

Job Environment

Occupations in this category are primarily concerned with oiling and greasing mechanical equipment, and include crane greasers, gas servicers, car oilers, tire changers, oilers and locksmiths. The work involves servicing and repairing miscellaneous mechanical equipment, such as small gasoline-powered lawn mowers, snowblowers and chain saws, and portable generators, pumps and furnaces. A five-day work week of 35 to 40 hours is normal, although being on call is usually part of the job, especially for home-heating furnace repairers. Travel from one repair job to another is often a requirement.

Educational Background and Skills

The training necessary for this occupation is generally provided by an apprenticeship program that lasts two to four years, depending on the specialization, the province, and previous training and experience. In some occupations, like vending-machine servicer, training is provided on the job. Grade 10 and a demonstrated mechanical ability are the minimum requirements for enrollment in this program, although employers usually prefer applicants who have completed secondary school.

Nature of Supply

Because of apprenticeship programs, sources of new supply originate in the formal education system as well as in the household sector (persons re-entering the labour force). Graduates from trade/vocational schools and community colleges who are in this occupation two years after graduation are found to have qualifications in mechanical engineering technologies and electrical/electronic engineering technologies. Preliminary estimates show that movement out of this occupation exceeds movement into the occupation, which suggests that for many, this field represents entry level in their careers.

Men accounted for 97.5 % of this category in 1981. The average age decreased slightly between 1971 and 1981, as the proportion of workers under 25 increased and the size of the 24 to 54 age group declined. Generally, persons enter this occupation between the ages of 20 and 24 and begin to leave for other occupations by the end of their 30s, for a less-than-average career length of 15 to 2[illegible] years.

Market Conditions and Job Prospects

Present projections call for improved employment prospects owing to an average rate of employment growth over the next eight years. Some 12,700 jobs are anticipated. Many of these will be replacements for the above-average proportion of employees in the 54-plus age category.

Workers in this category are employed in the trade (31%), manufacturing (27%) and services (21%) sectors. Based on the outlook for these industries, employment opportunities for this group appear favourable throughout the projection period. The services sector, for example, is expected to experience strong growth as favourable interest rates spur consumer spending. Economic conditions may influence employment, as in the past. While the incidence of part-time employment increased by 7% over a 10-year span ending in 1981, it remains below average.

This occupation is presently experiencing labour market conditions only slightly better than the overall average, as indicated by the unemployment rate in this category. They are not as favourable as they were prior to the 1981-1982 recession.

Earnings

Reported earnings in 1986 for locksmith trainees were $5.00 an hour, while locksmiths with more experience were paid as much as $18.00 an hour. The wide pay range is indicative of the varying levels of skill and experience in this trade.

The National Graduate Survey reported average earnings of $14,423 for 1982 university graduates working in these occupations two years after graduation, and $14,133 for community college graduates.

Jewellery and Silverware Fabricating, Assembling and Repairing Occupations

8591

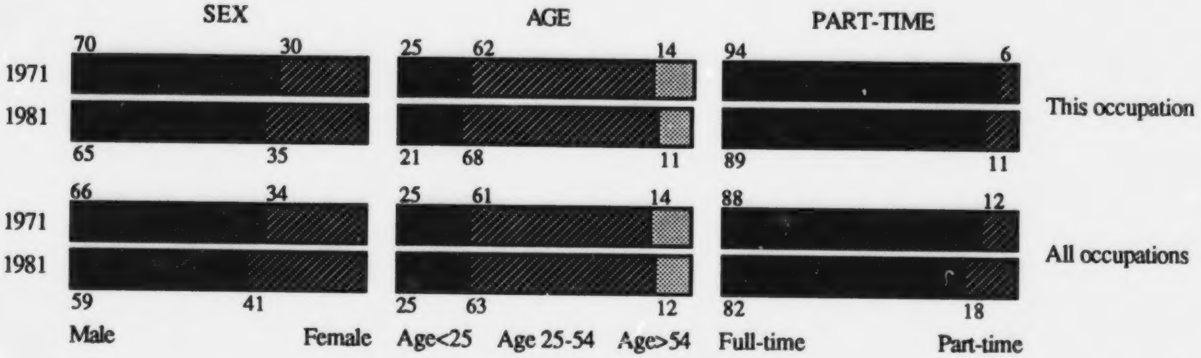
Employment Trends and Projections

	Employment			Average Annual Growth Rate (%)		
	1981	1986	1995	1971-81	1981-86	1987-95
This Occupation	5,100	5,000	5,500	5.8	−0.3	1.0
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation		All Occupations
	1987-95	% of 1987 Jobs	% of 1987 Jobs
Net New Job Openings	400	8.2	11.1
Replacement Openings	2,100	41.7	49.2
Total Job Openings	2,500	49.8	60.3

CENSUS – 1971 and 1981 (%)



1981 CENSUS – Main Industries of Employment (%)

Manufacturing (61)
- Misc Manufacturing (57)
- Metal Fabricating (2)

Trade (37)
- Retail Trade (32)
- Wholesale Trade (5)

Geographic Distribution of Employment – 1981 (%)

Newfoundland	0.2	Ontario	49.8
Prince Edward Island		Manitoba	1.5
Nova Scotia	0.7	Saskatchewan	1.3
New Brunswick	0.6	Alberta	4.0
Quebec	30.1	British Columbia	11.4

For further information, contact:

Canadian Jewellers Association
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20 Eglinton Avenue West
Toronto, Ontario M4R 1K8
(416) 480-1424

Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
– College (1981-86)	5	16.7
– University (1981-86)	0	0.0
Trade Vocational Schools (1983/84 only)	25	83.3

Jewellery and Silverware Fabricating, Assembling and Repairing Occupations

8591

Job Environment

Diamond cutter, embosser, gemologist and silversmith are typical occupations in this group. Jewellers make and repair precious and semi-precious metal jewellery. Some specialize as repairers, engravers, gem and diamond setters, designers, enamelists or sample makers. They may reshape and restyle old jewellery following designs or instructions. Others make jewellery designs, creating metal models for casting workers. The variation in jewellers' occupations is reflected in the variety of decorative articles that satisfy people's tastes and desires. Activities carried out by jewellers include cutting, filing, soldering, grinding and polishing. Jewellers may work in retail stores, in trade shops operated by wholesalers or in jewellery factories.

Educational Background and Skills

The route to becoming a jeweller is through either formal training or an apprenticeship program. Some technical and trade schools in Canada as well as the Canadian Jewellers' Association offer courses in jewellery design, manufacture and repair. Apprenticeships, which are not indentured, that is to say, for which no uniform system exists, normally last three to four years and include some formal instructional training.

Nature of Supply

Apprenticeships and the post-secondary education system are the primary sources of new supply to this occupation. Immigrants and labour force re-entrants are also sources of supply. Although inter-occupational mobility can not be measured with precision, it is expected that movement out of the field to related areas will marginally exceed the influx from other occupations, suggesting that for many, these jobs represent entry-level positions in their careers.

Most jewellers are men, but the number of women has been increasing. The majority of jewellers work in Ontario and Quebec.

The average age (36) has remained relatively stable since 1971. However, a shift in the age structure shows an increase in the number of jewellers between 25 and 54 years of age. A jeweller's career typically spans 35 years, normally starting when the jeweller is between the ages of 20 and 24.

Market Conditions and Job Prospects

Current projections based on the outlook for miscellaneous manufacturing call for modest employment growth, somewhat lower than the national average. In the next eight years, approximately 2,500 job openings are anticipated. Most of these opportunities will be created as members of this occupational category retire.

Labour market conditions for jewellery fabricators have improved in recent years, although they are not as favourable as prior to the 1981-1982 recession. Unemployment among jewellery fabricators in 1986 was on a par with the average for all occupations.

In the past, employment of jewellery fabricators has been susceptible to fluctuating business conditions. Seasonal forces, however, have little influence. Approximately one job in nine was part-time in 1981.

Earnings

Jewellers are paid on either a piece-work or a salary basis. Engravers, for example, are paid according to "price per letter", while diamond setters often receive a "price per stone". Incomes vary according to expertise and skills, and range from $14,000 to $30,000 per year. Average weekly earnings for jewellery repairers and fabricators in Toronto in 1987 ranged from $199 to $508.[1]

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[1] Employment and Immigration Canada, 1987.

Marine Craft Fabricating, Assembling and Repairing Occupations 8592

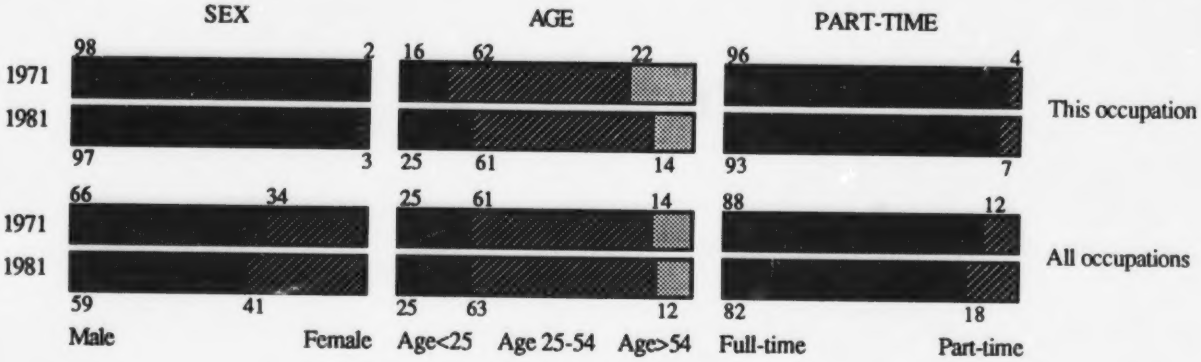
Employment Trends and Projections

	Employment			Average Annual Growth Rate (%)		
	1981	1986	1995	1971-81	1981-86	1987-95
This Occupation	9,900	9,800	12,000	6.5	−0.3	2.3
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation		All Occupations
	1987-95	% of 1987 Jobs	% of 1987 Jobs
Net New Job Openings	2,000	20.0	11.1
Replacement Openings	4,200	42.3	49.2
Total Job Openings	6,200	62.3	60.3

CENSUS – 1971 and 1981 (%)



1981 CENSUS – Main Industries of Employment (%)

Manufacturing (75)
- Shipbuilding+Repair (37)
- Misc Trans+Equip (31)
- Machinery (3)

Public Administration (6)
- Federal Admin (6)

Trade (5)
- Retail Trade (4)

Geographic Distribution of Employment – 1981 (%)

Newfoundland	5.3	Ontario	24.3
Prince Edward Island	0.3	Manitoba	1.4
Nova Scotia	15.3	Saskatchewan	0.2
New Brunswick	6.2	Alberta	1.2
Quebec	15.4	British Columbia	30.3

Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
– College (1981-86)	15	9.7
– University (1981-86)	0	0.0
Trade Vocational Schools (1983/84 only)	140	90.3

Marine Craft Fabricating, Assembling and Repairing Occupations 8592

Job Environment

Boat carpenter, marine machinist, ship joiner, steel fitter and shipwright are typical occupations in this group. Marine craft fabricators build and repair ships and other marine crafts and fittings. In the construction of a wooden boat, for example, workers cut and form parts, such as keels, stems, stern posts, ribs and sidings using carpentry tools. They also build and install structures such as mountings for machinery, shafting and propellor supports, pilot houses, cabins, rudders, decking, mast booms and ladders. Metal boats, of course, require more metalworking skills. In some cases, the work in this trade involves making service calls and being outdoors. Working conditions include dampness, noise and vibration, and exposure to liquids, fumes, odours and other hazards which require the use of safety equipment.

Educational Background and Skills

The minimum educational requirement for employment in this occupation is secondary school graduation. The level of skill required varies according to occupational specialty and the type of marine craft being built or repaired. Community college and trade/vocational school programs that emphasize welding, machining, pipefitting and marine engineering provide the basic preparation for entry into this occupation. Certain required skills are developed through on-the-job training.

Nature of Supply

The major source of new supply to this occupation is the formal post-secondary education system. Other sources of supply include labour force re-entrants, immigrants and the military. According to preliminary estimates, movements out of this occupation to related occupations should marginally exceed an influx from related occupations, suggesting that for many, these occupations represent entry-level positions in their careers.

Nearly all individuals in this occupation are men, who work in the provinces of British Columbia, Ontario, Quebec and Nova Scotia. Over the 1971 to 1981 period the average age in this occupation dropped from 41 years to 36, reflecting an increase in the number of individuals under 25. A typical career lasts between 30 and 35 years, with entry normally occurring between the ages of 20 and 24.

Market Conditions and Job Prospects

This occupational group is primarily employed in the shipbuilding and repair and miscellaneous transport and equipment industries, where the employment outlook appears favourable. Investment activity in water transportation and fishing and upgrading projects sponsored by the Department of National Defence will provide industrial growth in the short term. Long-term prospects may improve should offshore oil and gas exploration activity return to former levels. The employment of marine craft fabricators is influenced by economic conditions and seasonal factors, and is highest during the warm months of the year.

Current forecasts suggest employment will increase by 20% in the next eight years, which is above the national average. A total of 6,200 job openings are anticipated, of which 4,200 will be replacement openings, as an above-average share of the work force is in the 54-plus age group.

Despite projections of reasonable employment growth, a current oversupply has made unemployment rates in this grouping higher than average.

Shipbuilding is increasingly applying laser technology to the welding and cutting of heavy steel and steel alloys. Workers who are affected by this and other new technologies will require new skills to operate the equipment and machinery.

Earnings

The following table[1] provides 1985 average hourly wage rates and prevailing wage rate ranges for marine craft fabricating positions.

Engine Fitter	$15.03	$12.50 – $17.92
Joiner	15.09	12.30 – 17.92
Shipfitter	14.91	12.35 – 17.92
Shipwright	14.77	12.30 – 17.92

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[1] Labour Canada, *Wages and Working Conditions in Canada*, 1985.

Excavating, Grading and Related Occupations 8711

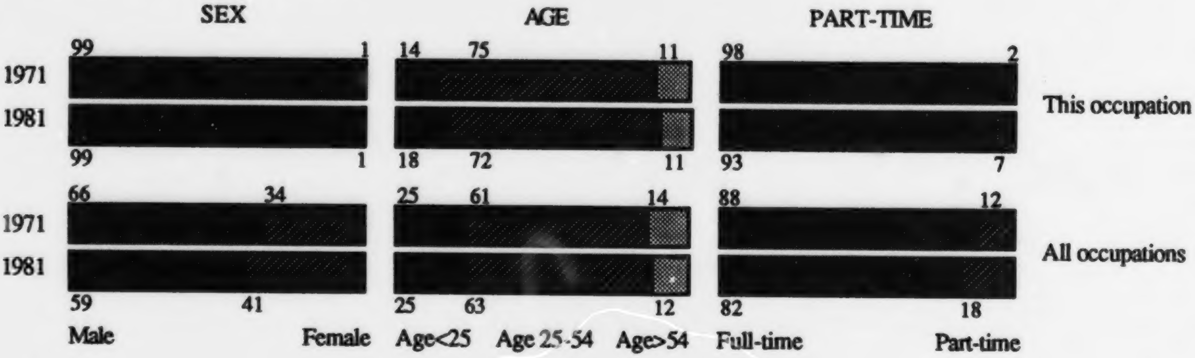
Employment Trends and Projections

	Employment 1981	Employment 1986	Employment 1995	Average Annual Growth Rate (%) 1971-81	Average Annual Growth Rate (%) 1981-86	Average Annual Growth Rate (%) 1987-95
This Occupation	48,300	40,200	52,100	6.7	−3.6	2.8
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation 1987-95	This Occupation % of 1987 Jobs	All Occupations % of 1987 Jobs
Net New Job Openings	10,200	24.3	11.1
Replacement Openings	18,200	43.3	49.2
Total Job Openings	28,400	67.7	60.3

CENSUS – 1971 and 1981 (%)



1981 CENSUS – Main Industries of Employment (%)

Construction (59)
- Construction (59)

Trans+Stor+Comm+Util (12)
- Misc Transport (9)

Public Administration (9)
- Municipal+Oth Gov't (7)
- Federal Admin (1)

Geographic Distribution of Employment – 1981 (%)

Newfoundland	3.3	Ontario	23.6
Prince Edward Island	0.6	Manitoba	3.7
Nova Scotia	3.8	Saskatchewan	5.0
New Brunswick	3.7	Alberta	20.2
Quebec	22.5	British Columbia	13.2

For further information, contact:

Canadian Construction Association
85 Albert St., 2nd Floor
Ottawa, Ontario K1P 6A4
(613) 236-9455

Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
- College (1981-86)	22	18.2
- University (1981-86)	4	3.3
Trade Vocational Schools (1983/84 only)	95	78.5

Excavating, Grading and Related Occupations 8711

Job Environment

This group consists of the operators of various types of excavating and grading equipment, such as horizontal-earth-boring machines, bulldozers, power shovels and dredging machines. Aside from operating the machines, operators of excavating and grading equipment are often expected to do routine maintenance and minor repairs such as changing the shovels, blades or other attachments.

This occupational work is carried out on construction sites or on roadways in all types of weather. Those employed by contract to local governments often work through the winter months removing snow from roads and airport runways. Other areas of work can include barge- or shore-type dredging of waterways. Much of the work is on a project-by-project basis.

Educational Background and Skills

Only the province of Quebec has a one-year compulsory apprenticeship program for heavy-duty equipment operators. In the past, most people have learned on the job, but this is changing as many colleges and trade/vocational schools are offering courses in how to use the increasingly more technical excavating and grading machinery. Most people who enter this occupation from community colleges have taken technical courses.

Operators must be physically strong, have good vision, fast reflexes and the ability to read grade plans and to use grade stakes in measuring the amount of earth to be moved. Operators may require mechanical dexterity since many of the equipment attachments are hydraulically or pneumatically operated. Operators of excavating and grading equipment need a fair amount of stamina as they often have to sit for long periods of time on vibrating or bouncing machinery.

Nature of Supply

Most people enter this occupation in their early to mid-20s after completing a formal training program or by promotion from a labourer position. Once there, they tend to stay until retirement. However, during periods of high demand there is some movement into this group. This occupation is almost totally dominated by men, though women are increasing their share of employment.

Market Conditions and Job Prospects

Growth in this occupation was above average in the 1970s, but the recession in the early 1980s resulted in proportionally larger lay-offs. The long-term outlook for growth is dependent upon the outlook for the economy as a whole, and especially on the outlook for major energy-related projects such as new tar sands plants or hydro-electric projects. For example, in 1981, Alberta accounted for a greater share of employment than any other province but, since the decline in oil prices, many of these jobs have moved to major construction projects in central Canada. Another major influence on the employment prospects for heavy-equipment operators is the volume of road, highway and bridge construction. The proposed cross-Canada improvement program for city roads and sewers during 1987 to 1995 is expected to provide more jobs for operators of excavating equipment.

Almost 85% of workers in this occupation are employed in construction or mining. Since these industries suffer a boom-and-bust cycle, and construction is seasonal, employees in the excavating, grading and related occupations can expect some periods of unemployment. The remaining employees, in manufacturing, can expect steadier employment. A strong economy also increases the opportunity for overtime work.

Technological change has influenced this occupation through the introduction of more productive heavy machinery that enables individual operators to perform more excavation in a given time and work to a greater precision. This trend is expected to continue.

Earnings

Unionized heavy-duty equipment operators in Vancouver earned between $15.57 and $19.40 per hour in 1987. For non-unionized operators the maximum was somewhat lower, at $16 per hour. Operators in Toronto in 1987 earned between $18 and $21 an hour. Heavy-duty equipment operators in the construction industry earned an hourly basic rate that ranged from $13.74 in St. John, to $18.84 in Vancouver in 1986. Hourly rates for other excavating and grading positions in Montreal in 1986 were:

shield runner	$15.26 to $17.88
muck machine operator	9.93 to 14.16
bulldozer operator	15.38 to 15.83
dragline operator	16.42 to 17.87
dredge operator	16.42 to 17.00
road grader, scraper operator, digging machine operator and loader operator	$15.38 to $15.83.

Electrical Power Line Workers and Related Occupations 8731

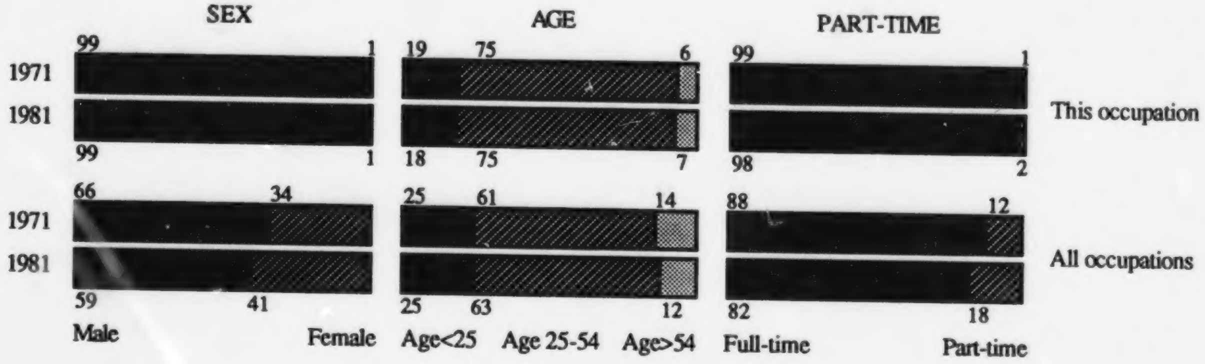
Employment Trends and Projections

	Employment 1981	Employment 1986	Employment 1995	Average Annual Growth Rate (%) 1971-81	Average Annual Growth Rate (%) 1981-86	Average Annual Growth Rate (%) 1987-95
This Occupation	12,300	11,000	12,200	3.5	-2.1	1.5
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation 1987-95	This Occupation % of 1987 Jobs	All Occupations % of 1987 Jobs
Net New Job Openings	1,400	12.6	11.1
Replacement Openings	4,800	44.0	49.2
Total Job Openings	6,100	56.6	60.3

CENSUS – 1971 and 1981 (%)



1981 CENSUS – Main Industries of Employment (%)

Trans+Stor+Comm+Util (77) - Electric Power (69) - Telephone+Telegraph (6) - Radio+TV Broadcast (1)	Construction (14) - Construction (14)	Manufacturing (3) - Electrical Products (2)

Geographic Distribution of Employment – 1981 (%)

Newfoundland	3.2	Ontario	39.6
Prince Edward Island	0.6	Manitoba	3.9
Nova Scotia	4.2	Saskatchewan	3.3
New Brunswick	3.2	Alberta	8.6
Quebec	24.0	British Columbia	9.7

For further information, contact:

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Ottawa, Ontario K1P 6A4
(613) 236-9455

Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
- College (1981-86)	48	49.0
- University (1981-86)	14	14.3
Trade Vocational Schools (1983/84 only)	36	36.7

Electrical Power Line Workers and Related Occupations

8731

Job Environment

This classification includes occupations concerned with constructing and maintaining power lines that carry electrical transmissions over long distances as well as in local distribution. Linemen, service linemen, repair linemen and cablemen are included in this category.

Linemen are employed in several settings. They erect high-voltage transmission lines leading from electricity generating sites to localities where the electricity is to be used. They assist in the construction of support towers, install insulators and other equipment, and string transmission lines. Construction linemen move from project to project, often changing provinces and working in remote areas. They are usually employed by the construction subsidiaries of utility companies or by contractors, although recently, contractors in some provinces have begun to employ labourers in place of linemen to rig and to install equipment on transmission towers and to oversee other work. Construction linemen who are union members obtain their work through the union on a rotating basis. Owing to the contractual nature of transmission line construction, which is usually only a part of a major project involving a generating facility, construction linemen may experience periods of unemployment between projects.

Repair and service linemen are on call at most times and may work for long periods during emergency conditions, such as major storms.

Educational Background and Skills

Apprenticeship programs are the usual means of entering the lineman trade. The prerequisite for these programs is Grade 9 in New Brunswick; Grade 10 in Newfoundland, Prince Edward Island, Nova Scotia, Ontario and British Columbia; Grade 11 in Manitoba and Saskatchewan; and Grade 12 in Alberta.

Linemen must be physically fit and must have the agility and temperament to work at considerable heights in awkward positions.

Nature of Supply

Most line workers are men; however, women are being encouraged to enter the trade and now represent a small but growing proportion of this labour force.

Market Conditions and Job Prospects

Employment in this trade has been slow since 1981; however, average employment growth is projected for the period from 1987 to 1995, owing to a number of anticipated electricity generation projects. Increased power exports to the U.S. will require new transmission facilities, creating increased demand for construction linemen. Although construction linemen experienced slow employment growth in the mid-1980s, projected growth forecasts a significant jump in employment to above that experienced in 1981, a year of considerable activity.

Available statistics indicate that linemen tend to leave the trade at an earlier age than in some other occupations. Most enter the occupation between the ages of 20 and 21, and start leaving it in their mid-30s. This short career trend should result in relatively large replacement requirements.

Linemen work mainly during the summer months. Employment is nearly always full-time and remains stable, despite changing economic conditions.

Earnings

Construction linemen's wages depend on the availability of work. Repair and maintenance linemen enjoy more regular although lower incomes. In 1987, union linemen were paid from just over $16.00 to over $20.00 per hour, depending on location. Since, especially in busy times, overtime is not uncommon, actual average hourly rates of pay are frequently higher.

The National Graduate Survey reported 1984 average annual earnings of approximately $25,000 for 1982 community college graduates working in this occupation.

Construction Electricians and Repairers 8733

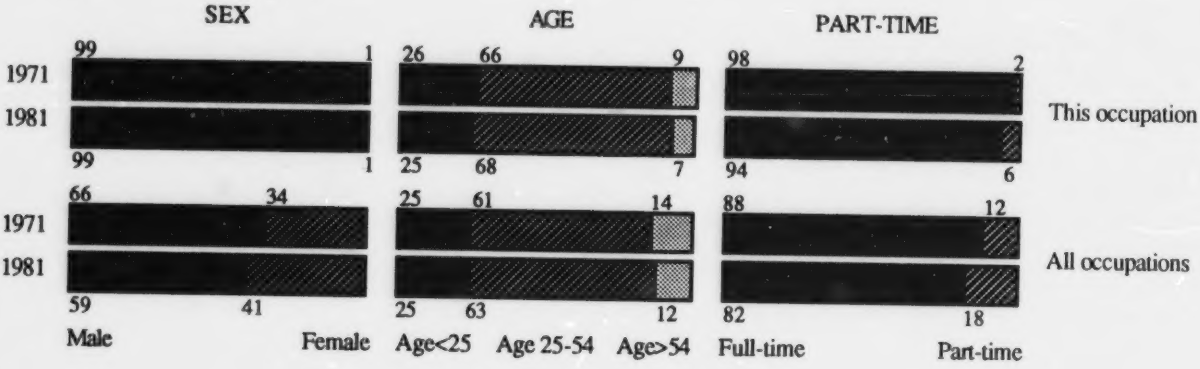
Employment Trends and Projections

	Employment			Average Annual Growth Rate (%)		
	1981	1986	1995	1971-81	1981-86	1987-95
This Occupation	52,200	49,100	58,100	1.8	-1.2	1.9
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation		All Occupations
	1987-95	% of 1987 Jobs	% of 1987 Jobs
Net New Job Openings	8,200	16.5	11.1
Replacement Openings	25,800	51.8	49.2
Total Job Openings	34,000	68.3	60.3

CENSUS – 1971 and 1981 (%)



1981 CENSUS – Main Industries of Employment (%)

Construction (61)
- Construction (61)

Manufacturing (15)
- Primary Metals (4)
- Pulp+Paper (2)
- Motor Veh+Trls+Parts (1)

Trans+Stor+Comm+Util (8)
- Electric Power (6)
- Rail Transport (1)

Geographic Distribution of Employment – 1981 (%)

Newfoundland	1.7	Ontario	33.3
Prince Edward Island	0.4	Manitoba	3.5
Nova Scotia	3.4	Saskatchewan	4.2
New Brunswick	2.4	Alberta	16.5
Quebec	21.5	British Columbia	12.7

Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
– College (1981-86)	47	17.7
– University (1981-86)	29	10.9
Trade Vocational Schools (1983/84 only)	190	71.4

For further information, contact:

Canadian Electrical Contractors Association
Suite 605
161 Eglinton Avenue East
Toronto, Ontario M4P 1J5
(416) 486-1290

Canadian Construction Association
85 Albert St., 2nd Floor
Ottawa, Ontario K1P 6A4
(613) 236-9455

Construction Electricians and Repairers

8733

Job Environment

Electricians in this classification install and repair wiring in buildings and other structures and install switches, conduits, circuit breakers, lighting, programmable logic controllers and other apparatus. They work in both residential and non-residential construction, either as employees or as contractors. Electricians who are members of a union usually work out of a hiring hall, where work is allocated by the union. Much of electrical work is done in a standing position, often in confined spaces. Risks involved include falling from a height or receiving an electrical shock.

Educational Background and Skills

Most electricians enter the trade through an apprenticeship. All provinces offer apprenticeship programs, which generally take four years (five years in New Brunswick and Ontario). Training which meets the specifications of the Interprovincial Standards Programme is recognized across Canada. The educational requirement for entrance to apprenticeship programs is Grade 12 in British Columbia, Grade 11 in Saskatchewan, Grade 9 in New Brunswick and Grade 10 in all other provinces except Alberta, where Math 20/23 is required. Certification is required in Nova Scotia, Prince Edward Island, New Brunswick, Quebec, Ontario and Saskatchewan. This means that in order to work as an electrician in these provinces, a person must either have completed an apprenticeship or have passed a qualifying examination. To obtain permission to write the qualifying exam, a person must have considerable documented experience in the trade.

Persons considering the electrical trade should be in reasonably good physical condition. An analytical ability is an asset, since electricians must understand building plans and wiring diagrams.

Nature of Supply

The majority of construction electricians are men, but women are encouraged to enter the trade and represent a growing proportion of this work force.

The rate of attrition in the electrical trade is somewhat greater than in other skilled construction trades. Available statistics indicate that electricians often leave the trade at an earlier-than-average age. Many enter the trade between the ages of 19 and 23, and later in their careers form their own contracting businesses.

Market Conditions and Job Prospects

The recession of the early 1980s had the effect of reducing employment among electricians, but between 1987 and 1995, employment is expected to grow beyond the level reached during the early 1980s. In new construction, as opposed to maintenance work, the demand for electricians should expand by 22%.

A recent trend that may increase the amount of work available to electricians is the growing popularity of "smart" buildings. These structures, whether stores, office buildings or homes, have a central computer, which monitors and controls many functions, including heating, air conditioning, ventilation, building elevators, lighting and so forth. Electricians are called upon to install much of the necessary equipment and wiring.

Employment in the electrician trade is susceptible to overall economic conditions. During the recession of the early 1980s, the number of unemployed electricians claiming unemployment insurance rose dramatically. Electricians generally work on a project-by-project basis, and when construction activity is slack, they may experience unemployment while waiting for the next project. Statistics show that seasonal variation in employment is not nearly as pronounced as in most other construction trades.

Earnings

The Canadian Construction Association reported that in 1987, unionized construction electricians earned the following hourly base rates:

British Columbia	$20.35
Manitoba	18.80
Ontario	20.17
Quebec	18.86
Nova Scotia	20.13
New Brunswick	$16.68 – 18.17
Prince Edward Island	16.16
Newfoundland (1986)	17.37

Wire Communications and Related Equipment Installing and Repairing Occupations

8735

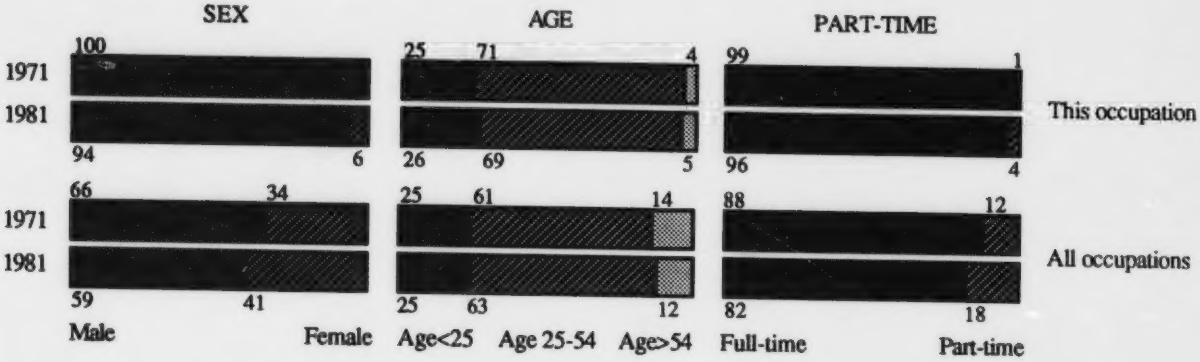
Employment Trends and Projections

	Employment 1981	Employment 1986	Employment 1995	Average Annual Growth Rate (%) 1971-81	Average Annual Growth Rate (%) 1981-86	Average Annual Growth Rate (%) 1987-95
This Occupation	32,100	33,100	33,400	5.0	0.7	0.0
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation 1987-95	This Occupation % of 1987 Jobs	All Occupations % of 1987 Jobs
Net New Job Openings	-100	-0.3	11.1
Replacement Openings	10,800	32.2	49.2
Total Job Openings	10,700	31.9	60.3

CENSUS – 1971 and 1981 (%)



1981 CENSUS – Main Industries of Employment (%)

Trans+Stor+Comm+Util (84)
- Telephone+Telegraph (74)
- Radio+TV Broadcast (4)
- Electric Power (3)

Manufacturing (5)
- Electrical Products (5)

Construction (4)
- Construction (4)

Geographic Distribution of Employment – 1981 (%)

Newfoundland	1.4	Ontario	34.8
Prince Edward Island	0.3	Manitoba	4.4
Nova Scotia	3.1	Saskatchewan	4.3
New Brunswick	2.2	Alberta	13.1
Quebec	20.5	British Columbia	15.6

For further information, contact:

Canadian Construction Association
85 Albert St., 2nd Floor
Ottawa, Ontario K1P 6A4
(613) 236-9455

Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
- College (1981-86)	126	53.6
- University (1981-86)	24	10.2
Trade Vocational Schools (1983/84 only)	85	36.2

Wire Communications and Related Equipment Installing and Repairing Occupations

8735

Job Environment

Occupations in this group concern the installation, repair and maintenance of all wire communication equipment. This includes such jobs as installing telephone lines, maintaining sophisticated telephone switching systems at central locations, maintaining special systems for the transmission of computerized data, and installing telephones, cable TV lines and burglar alarms in private residences and commercial buildings. There is a trend towards pre-wired buildings, but still much of the work consists of upgrading wiring in existing buildings. New equipment installed in large commercial buildings is now often repaired at a central facility, not on-site. Some of the occupational titles in this classification include telephone technician, wire installer, burglar-alarm installer and switchboard repairer.

The working conditions of this group vary greatly, depending on the nature of the position. Line installers work outdoors, often in inclement weather, installing poles and lines. When services are underground, line installers must work in very cramped quarters fishing wires through small passageways. Other workers install or repair equipment in commercial buildings and private houses.

Wiring technicians work regular hours, but they may be on call 24 hours a day for emergency repairs. Emergencies usually occur in poor weather conditions and can result in long hours for the technician.

Educational Background and Skills

There are no compulsory apprenticeship programs, but most people entering this occupation have taken courses in electronics at the community college or vocational school level. Depending on the level of the position, some may start right after graduation from a technical program in high school.

A basic knowledge of hand tools is required. The splicing of many, very small colour-coded wires requires that people in this occupation work systematically and with patience. Good eye sight, a good diagnostic ability and the ability to distinguish colours are also necessary.

In large companies, even after an electronics education, wiring technicians must take an internal apprenticeship program, since the technical equipment is usually firm-specific. While this can reduce mobility between firms, because any new employee would have to be retrained regardless of experience, it also implies that most firms promote from within. A person starting at the bottom can therefore progress to positions as foreman/forewoman or shift supervisor and occasionally to jobs beyond first-line supervisor.

Nature of Supply

Most technicians are men in the 25 to 54 age group. The proportion of women is well below the average for all occupations, at under 6%.

Market Conditions

Employment in this occupation increased rapidly during the 1970s, much faster than the average for all occupations, owing to the growth in the electronic communications industry, including cable television. This rapid employment growth ended in 1984 with some job loss, a sign of productivity growth and perhaps that the market for this occupation is maturing.

Over the forecast period it is expected that this occupation will experience slower-than-average employment growth. Despite the fact that there is little worker movement into or out of this occupation and that there are few older workers, most job opportunities will be replacement openings.

The major employer of wiring technicians is the communications industry, particularly telephone and telecommunications companies. In this sector, work tends to be steady, with little seasonal or cyclical variation. Most other technicians work for manufacturers of electrical products or in the construction industry. In the latter case, employees can expect to encounter seasonal and cylical employment.

Technology is changing rapidly in this field, with the incorporation of fibre optics and improved computer technology. Consequently, technicians in this occupational group will be subject to continuous retraining.

Earnings

Estimates of the average salary in this classification may be misleading, because it encompasses a wide range of skills, training and experience. People working for larger companies, and on more technical equipment, tend to earn more than those who work for smaller companies or with less technical equipment.

According to the 1984 National Graduate survey, the average salary for a full-time employee who graduated from community college in 1982 was estimated at $24,000 a year. According to the 1986-1987 collective agreement between the Communications, Electronic, Electrical, Technical and Salaried Workers of Canada and Bell Canada, the wage rate for an automatic equipment mechanic runs from $8.57 to $18.05 per hour. Wage rates for repair technicians and installers run from $9.48 to $18.65 per hour.

Inspecting, Testing, Grading and Sampling Occupations: Electrical Power, Lighting and Wire Communications Equipment Erecting, Installing and Repairing

8736

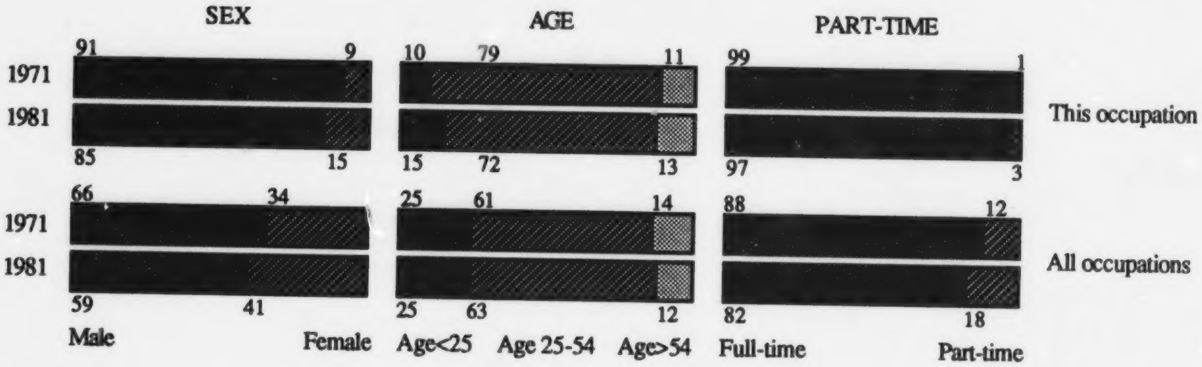
Employment Trends and Projections

	Employment			Average Annual Growth Rate (%)		
	1981	1986	1995	1971-81	1981-86	1987-95
This Occupation	4,900	5,000	5,300	4.9	0.4	0.6
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation		All Occupations
	1987-95	% of 1987 Jobs	% of 1987 Jobs
Net New Job Openings	200	4.8	11.1
Replacement Openings	2,000	39.7	49.2
Total Job Openings	2,200	44.5	60.3

CENSUS – 1971 and 1981 (%)



1981 CENSUS – Main Industries of Employment (%)

Trans + Stor + Comm + Util (60)
- Telephone + Telegraph (31)
- Electric Power (25)
- Rail Transport (2)

Manufacturing (21)
- Electrical Products (18)

Public Administration (10)
- Provincial Admin (6)
- Federal Admin (2)
- Municipal + Oth Gov't (1)

Geographic Distribution of Employment – 1981 (%)

Newfoundland	0.7	Ontario	34.0
Prince Edward Island	0.2	Manitoba	3.2
Nova Scotia	1.5	Saskatchewan	2.7
New Brunswick	1.4	Alberta	4.8
Quebec	42.8	British Columbia	8.7

For further information, contact:

Canadian Construction Association
85 Albert St., 2nd Floor
Ottawa, Ontario K1P 6A4
(613) 236-9455

Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
– College (1981-86)	15	100.0
– University (1981-86)	0	0.0
Trade Vocational Schools (1983/84 only)	0	0.0

Inspecting, Testing, Grading and Sampling Occupations: Electrical Power, Lighting and Wire Communications Equipment Erecting, Installing and Repairing

8736

Job Environment

Occupations in this group include cable tester, electrical inspector, relay tester and testboard analyser and are concerned with quality in the installation and repair of wiring and equipment for electric power generation and transmission. Patrollers inspect overhead wires for signs of damage or weakness, often from the pole or by using an infra-red scope, which detects hot spots. Other inspectors test and inspect electrical cables in buildings to determine whether they are capable of carrying the required electrical load; read wiring diagrams to ensure that buildings meet the requirements of the electrical code; and examine fire-damaged buildings to determine whether faulty wiring existed. They also assist owners, contractors and electricians in planning electrical installations. People in this occupational group also test transmission facilities (overhead wires, transformers and switching systems), trace and diagnose wiring and circuit deficiencies and test and maintain office telecommunications equipment.

Inspectors may work outdoors, often in poor weather conditions and for long hours during emergencies. In large generating stations or in telecommunications offices, their jobs often require shift work, because some equipment must be monitored 24 hours a day. Many inspectors are in constant contact with the public in private homes, in commercial buildings or on construction sites.

Educational Background and Skills

People usually enter this occupation as a result of a promotion, after several years' experience in a repair and installation position. There are no provincial apprenticeship programs for this occupation, but employees in this group would have already completed the courses required for the entry-level occupation. Most large firms provide in-house training. Inspectors should be graduates of a high-school technical program, although many employers want college graduates. College courses in electricity and electronics and courses in instrumentation are a definite asset.

Since technology is changing quickly in this field and many systems are becoming computerized, employees can expect to undergo continuous retraining as new equipment is developed. However, the training a person receives in one firm may not be transferable to other firms because of the specialized nature of the equipment each firm uses. This may partially explain why there is very little movement into or out of this occupation.

Nature of Supply

Most inspectors enter the field before age 24, and available statistics indicate that they tend to stay in the occupation throughout their working life. In 1981, women accounted for about 15% of the inspectors in this group.

Market Conditions and Job Prospects

During the 1970s, employment in this group increased faster than overall employment; however, this is not expected to continue, as growth will be below-average over the forecast period.

Improvements in technology are one reason for slower employment growth. The more sophisticated systems, which are self-diagnostic and need less maintenance, require fewer inspectors. Owing to the age structure of this group, there will be relatively less replacement demand than for other occupations. However, increasing electrical applications may spur demand to somewhat higher levels than projected here.

Employment is not very sensitive to seasonal factors or cyclical growth. There is very little part-time work.

The main sector of employment for this group is the telecommunications industry, which accounts for about one third of all inspectors. Another 25% of workers are employed in the electric utilities. Others work in the manufacturing of electrical products, and in government.

Earnings

According to the 1984 National Graduate Survey, the average salary for a community college graduate with two years' experience was $28,400. Actual wage rates vary greatly, depending on the nature of the equipment being serviced and the company for which the employee works. As an example, the 1986-1987 agreement between the Communications, Electronic, Electrical, Technical and Salaried Workers of Canada and Bell Canada reveals wage rates ranging from $9.48 to $18.65 per hour for repair technicians and testers.

Carpenters and Related Occupations 8781

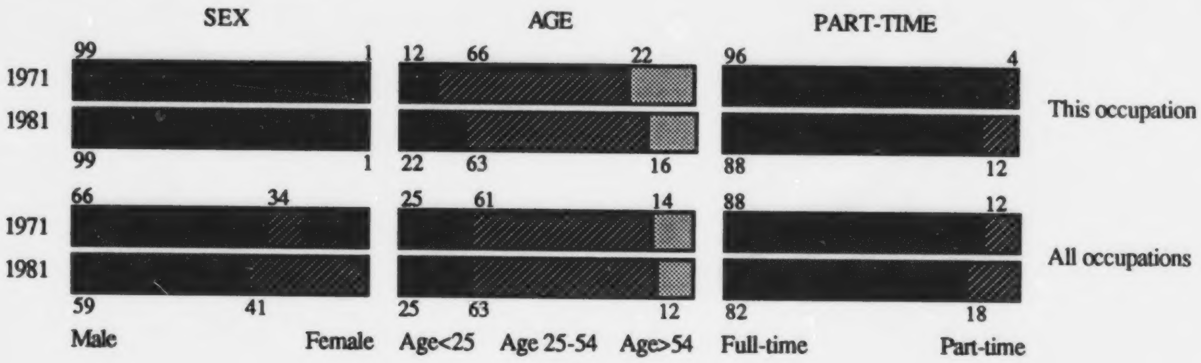
Employment Trends and Projections

	Employment			Average Annual Growth Rate (%)		
	1981	1986	1995	1971-81	1981-86	1987-95
This Occupation	114,700	125,700	134,100	2.5	1.9	0.9
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation		All Occupations
	1987-95	% of 1987 Jobs	% of 1987 Jobs
Net New Job Openings	9,000	7.2	11.1
Replacement Openings	67,200	53.7	49.2
Total Job Openings	76,200	60.9	60.3

CENSUS – 1971 and 1981 (%)



1981 CENSUS – Main Industries of Employment (%)

Construction (73)
- Construction (73)

Manufacturing (9)
- Wood (3)
- Furniture+Fixture (1)

Services (6)
- Education (2)

Geographic Distribution of Employment – 1981 (%)

Newfoundland	2.8	Ontario	26.9
Prince Edward Island	0.8	Manitoba	3.6
Nova Scotia	4.2	Saskatchewan	5.1
New Brunswick	3.4	Alberta	15.3
Quebec	19.5	British Columbia	18.0

For further information, contact:

Canadian Construction Association
85 Albert St., 2nd Floor
Ottawa, Ontario K1P 6A4
(613) 236-9455

Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
- College (1981-86)	187	18.8
- University (1981-86)	54	5.4
Trade Vocational Schools (1983/84 only)	754	75.8

Carpenters and Related Occupations

8781

Job Environment

Carpentry occupations include carpenters, joiners, framers, form builders, maintenance carpenters and others involved in the construction, renovation and maintenance of wooden structures. They are among the most numerous of skilled construction tradespeople, since all classes of construction provide employment for them. Carpenters have traditionally worked on wood, but in modern construction they also work with plastics, metal and other materials. *Rough* carpentry involves construction formwork, frames of buildings and other work associated with the assembly of basic structures, while *finish* carpentry, as the name suggests, is concerned with the final stages of construction, such as the installation of doors, mouldings, stairs and so forth. Fully trained carpenters can do both rough and finish carpentry, but many specialize, depending on the type of structure on which they normally work and the size of their community. Carpenters in rural regions are likely to practise all of their skills, while those living in urban areas may specialize in, for example, cabinet installation or stair construction.

Carpenters can work either as employees or as independent contractors. In both cases, they usually work on a project-by-project basis. When construction activity is slow and few projects are underway, unemployment among carpenters may be high. Members of a construction union usually work out of a union hiring hall, where the union allocates work to members on a rotating basis.

Some carpenters work as maintenance personnel on a normal 35-to-40-hour-per-week basis. The employment patterns for this trade do not resemble those for the construction industry.

Educational Background and Skills

Although some carpenters learn the trade on an informal basis, an apprenticeship is recommended. Carpenters with a thorough knowledge of trade skills have a wider choice of job settings and generally find work more easily, especially in slack times.

All provinces offer apprenticeship programs, which usually last four years. The educational requirements for these programs are Grade 10 in Nova Scotia, Prince Edward Island, Ontario, Saskatchewan and British Columbia, and Grade 9 in Newfoundland, New Brunswick, Manitoba and Alberta. Certification is compulsory in Quebec. Apprenticeship training meeting the standards of the Interprovincial Standards Programme is recognized in all provinces.

Nature of Supply

From 1971 to 1981, the number of women practising carpentry tripled. Women are encouraged to enter the trade.

The number of immigrants and temporary foreign workers specifically destined for the carpentry labour force has been roughly constant over recent years, accounting for only a minor portion of new trade entrants.

Contrary to other skilled construction tradespeople, many carpenters tend to remain in their occupation a long time. Most enter the trade between the ages of 17 and 20. The rate of attrition, not counting seasonal withdrawals, is relatively low. Many carpenters practise the trade until retirement. However, since the number of carpenters is large, numerous vacancies will be created over the 1987 to 1995 period by persons leaving the trade.

Market Conditions and Job Prospects

Employment for carpenters fell during the early 1980s as a result of the recession, although by 1986, previous employment losses had been recovered. Employment growth is expected to continue through 1995. Employment created by new construction activity is expected to grow by 7.2% between 1987 and 1995. The new jobs will be additional to those resulting from persons leaving the occupation. Most openings created by construction growth will be in central Canada, while retirement openings will be more evenly distributed geographically.

As carpenters are increasingly being called upon to install pre-manufactured assemblies in dwellings and other structures, fewer are required for on-site work. Carpenters are subject to periods of unemployment during times of economic recession. Seasonal variation also affects their employment.

Earnings

The Canadian Construction Association reported the following basic hourly union wage rates for carpenters in 1987:

British Columbia	$19.10
Manitoba	17.72
Ontario — Hamilton	20.40
— Sudbury	18.60
— Toronto	19.65
Quebec	17.97
Prince Edward Island	13.51
Nova Scotia	16.67
New Brunswick — industrial	15.54
— commercial	13.63
Newfoundland (1986)	14.84

Brick and Stone Masons and Tile Setters

8782

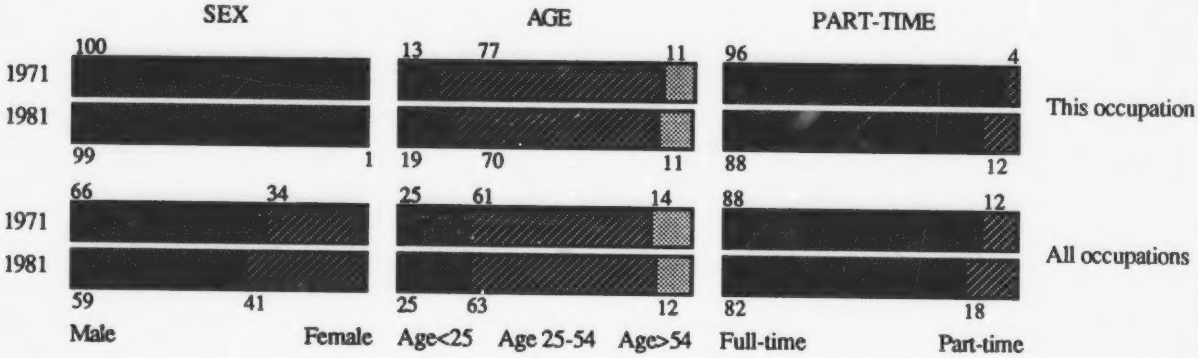
Employment Trends and Projections

	Employment			Average Annual Growth Rate (%)		
	1981	1986	1995	1971-81	1981-86	1987-95
This Occupation	20,700	24,100	25,800	1.8	3.1	0.6
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation		All Occupations
	1987-95	% of 1987 Jobs	% of 1987 Jobs
Net New Job Openings	1,200	5.0	11.1
Replacement Openings	11,200	45.7	49.2
Total Job Openings	12,500	50.7	60.3

CENSUS - 1971 and 1981 (%)



1981 CENSUS - Main Industries of Employment (%)

Construction (85) - Construction (85)	Manufacturing (10) - Primary Metals (5) - Non-Met Mineral Prod (3) - Pulp+Paper (1)	Trade (1)

Geographic Distribution of Employment - 1981 (%)

Newfoundland	1.1	Ontario	45.4
Prince Edward Island	0.3	Manitoba	2.2
Nova Scotia	2.4	Saskatchewan	2.9
New Brunswick	2.3	Alberta	10.8
Quebec	21.6	British Columbia	11.1

For further information, contact:

Canadian Construction Association
85 Albert St., 2nd Floor
Ottawa, Ontario K1P 6A4
(613) 236-9455

Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
- College (1981-86)	24	44.4
- University (1981-86)	3	5.6
Trade Vocational Schools (1983/84 only)	27	50.0

Brick and Stone Masons and Tile Setters

8782

Job Environment

This occupational group includes the masonry trades, which are concerned with preparing and laying brick, block, stone, tile, refractory brick and similar materials. Masons read and interpret plans, conduct measurements and lay out their work. In much of Canada, they work in commercial and institutional building construction, but in central Canada, where brick is a popular material for residential structures, many bricklayers are employed in housing construction.

Masons work in a variety of settings involving new or renovation construction. They are often employed on a project-by-project basis, either as employees or as independent contractors. Masons who are members of construction union locals usually work out of a union hiring hall where work is allotted to them by the union.

Educational Background and Skills

The principal avenue of entry to the masonry trades is through an apprenticeship. A trademan's qualification is compulsory in Nova Scotia, New Brunswick and Quebec. In other provinces, while the completion of an apprenticeship is not mandatory in order to practise the trade, it is a definite asset. Training that conforms to the specifications of the Interprovincial Standards Programme is officially recognized in all provinces.

Apprenticeship programs in masonry are generally three to four years in length. Seven provinces, excluding Quebec, Ontario and Manitoba, offer pre-apprenticeship or pre-employment courses. The minimum educational requirement for entrance to the apprenticeship program ranges from Grade 8 in Newfoundland, Nova Scotia, New Brunswick and Ontario, and Grade 9 in Manitoba and Alberta, to Grade 10 in Prince Edward Island, Saskatchewan and British Columbia. Other requirements are the ability to make accurate calculations regarding dimensions and distances, good spatial perception for interpretation of drawings and specifications, and good hand-eye co-ordination. Reasonably good physical condition is also necessary, because masons often lift heavy loads and work in a stooping or kneeling position. Much of the activity is outdoors, which creates a strong seasonal variation in employment.

Many masons learn the trade informally by working as helpers and by observing experienced workers. However, formal apprenticeship training is more likely to provide a complete set of skills in a shorter time.

Nature of Supply

Most masons are men, although more women have been entering the trade in recent years. Individuals commonly enter the trade between 17 and 19 years of age, and continue practising their trade up until middle age and often beyond. Masonry proves not to be just a young man's trade. Because of the large number of masons in the older age group, a significant portion of the masonry work force will be retiring over the next decade. This will create employment opportunities for those entering the trade during the 1987 to 1995 period.

Market Conditions and Job Prospects

Employment for masons grew somewhat more slowly between 1971 and 1981 than in other occupations. The demand for masons is expected to increase over the 1987 to 1995 period, but at a rate slower than the overall average.

Masons who work on construction projects may experience frequent periods of idleness as they wait for new work following completion of a project. This pattern of unemployment is more pronounced during economic slowdowns, and has been seen often in past years. During the recession of the early 1980s, unemployment rose dramatically, peaking in 1984. Unemployment also tends to be more prevalent during the winter months.

Earnings

Masons' wages are dependent on the availability of work. They also vary according to the kind of work, residential or non-residential, union or non-union, ranging from $10.00 to over $20.00 per hour. The extent of fringe benefits also depends on the work setting.

The Canadian Construction Association reported the following hourly base rates for unionized bricklayers in 1987: British Columbia, $19.19; Manitoba, $17.75; Alberta, $16.57 (1986); Ontario, $19.66 (Kingston), $19.79 (Thunder Bay), $20.33 (Toronto); Quebec, $18.33; Prince Edward Island, $14.48; Nova Scotia, $18.65; New Brunswick, $14.52; and Newfoundland, $16.34 (1986).

Concrete Finishing and Related Occupations 8783

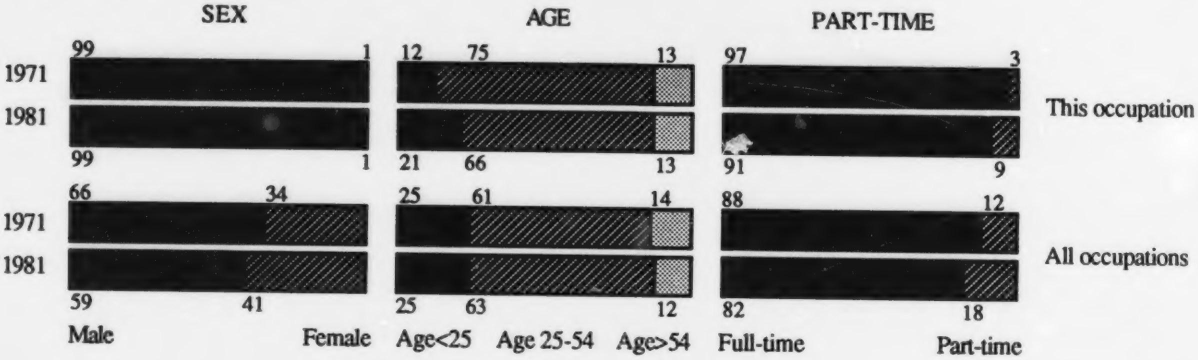
Employment Trends and Projections

	Employment 1981	Employment 1986	Employment 1995	Average Annual Growth Rate (%) 1971-81	Average Annual Growth Rate (%) 1981-86	Average Annual Growth Rate (%) 1987-95
This Occupation	6.500	6.200	7.600	1.1	-0.9	2.2
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation 1987-95	This Occupation % of 1987 Jobs	All Occupations % of 1987 Jobs
Net New Job Openings	1.200	19.2	11.1
Replacement Openings	4.100	64.9	49.2
Total Job Openings	5.400	84.1	60.3

CENSUS – 1971 and 1981 (%)



1981 CENSUS – Main Industries of Employment (%)

Construction (83)
- Construction (83)

Manufacturing (8)
- Non-Met Mineral Prod (6)

Public Administration (4)
- Municipal+Oth Gov't (4)

Geographic Distribution of Employment – 1981 (%)

Newfoundland	0.7	Ontario	33.9
Prince Edward Island	0.1	Manitoba	3.2
Nova Scotia	1.6	Saskatchewan	4.3
New Brunswick	1.3	Alberta	20.1
Quebec	20.7	British Columbia	14.5

For further information, contact:

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85 Albert St., 2nd Floor
Ottawa, Ontario K1P 6A4
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Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
- College (1981-86)	0	0.0
- University (1981-86)	0	0.0
Trade Vocational Schools (1983/84 only)	0	0.0

Concrete Finishing and Related Occupations

8783

Job Environment

Occupations in this group include cement masons, cement-gun nozzle operators, concrete smoothers and terrazzo workers. Most concrete workers are employed on construction sites ranging from sidewalks, boulevards and foundations for houses to large construction projects, such as high-rise buildings. They therefore usually work outdoors, although on some occasions the work site is inside.

The cement mason prepares forms or molds into which concrete is dumped by truck, wheelbarrow or crane, depending on the size of the form. After ensuring the concrete is the right depth and that there are no air pockets, the mason smooths the surface using a large board with a handle. At some projects, the cement mason may spray the concrete onto the sub-structure instead of pouring it into forms. It is later finished using hand or power tools.

Terrazzo workers apply marble or stone chips to floors, walls or other fixtures to obtain a durable and decorative surface. They first prepare the surface with flooring paper followed by a mortar mixture. They then develop a pattern using metal strips, and embed the terrazzo tiles according to the pattern. Sometimes the tiles are prefinished, but usually they need grinding and polishing to provide a flat smooth surface.

Educational Background and Skills

There are few formal prepatory courses for this occupation. On-the-job training and experience are the main ways of learning the trade. Many people therefore enter this occupation directly out of high school. Quebec, Ontario, British Columbia and Alberta administer certification programs involving on-the-job training, although only Quebec's program is compulsory. In other provinces where training exists, the programs are usually set up by the union or jointly by the union and the contractors' council.

Nature of Supply

During times of peak demand, job openings for concrete finishers may be filled through immigration. The age structure in this occupation indicates a large number of employees in the 40- to 60-year-old age group, most of whom are men. This situation, moreover, does not appear to be changing.

Market Conditions and Job Prospects

Employment growth in this occupation should be faster than the average for all occupations. The age structure indicates that there will be new job openings created through attrition, and worker movement out of this occupation will also leave vacancies.

During the 1970s, growth in this occupation was faster than in all other occupations. However, cement masons suffered a proportionally greater number of lay-offs during the recession in the early 1980s. Recently, there has been a trend towards greater use of concrete in commercial construction, which should improve the employment situation. The current outlook for the construction industry is also slightly better than the average for all industries.

According to unemployment statistics, work in this occupation is seasonal and very susceptible to changes in business conditions, owing to the boom-and-bust nature of the construction industry, which employs eight out of 10 concrete finishers. Consequently, anyone entering this occupation can expect periods of unemployment. Employees working in manufacturing or municipal government will tend to have more continuous employment.

Earnings

The Canadian Construction Association reported the following basic union hourly wage rates for cement masons in 1987:

British Columbia	$18.25
Manitoba (1986)	15.30
Ontario — Ottawa	17.87
— Sarnia	17.92
— Toronto	18.54
Quebec (1986)	16.26
Nova Scotia	15.61
New Brunswick (1986)	15.40
Newfoundland	16.34

Annual incomes depend, of course, on whether the cement finisher is covered by a union contract and on seasonal influences.

Plasterers and Related Occupations 8784

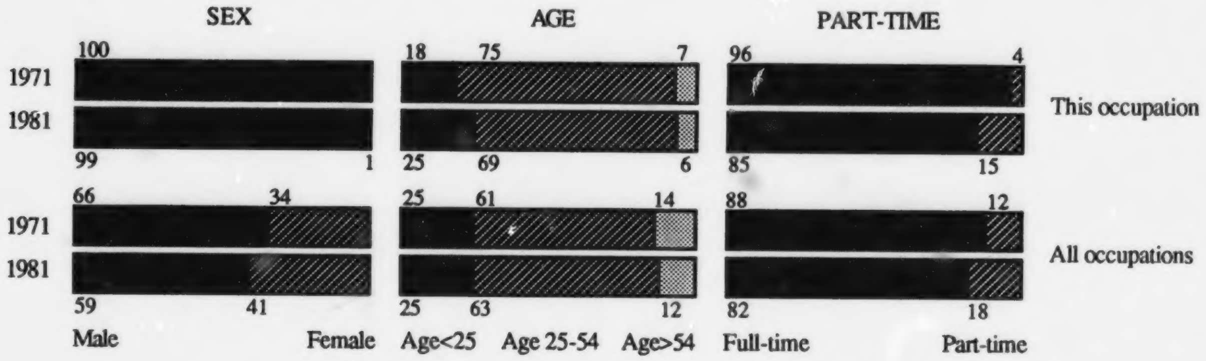
Employment Trends and Projections

	Employment 1981	Employment 1986	Employment 1995	Average Annual Growth Rate (%) 1971-81	Average Annual Growth Rate (%) 1981-86	Average Annual Growth Rate (%) 1987-95
This Occupation	15,400	14,900	17,800	5.1	−0.6	2.0
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation 1987-95	This Occupation % of 1987 Jobs	All Occupations % of 1987 Jobs
Net New Job Openings	2,600	16.9	11.1
Replacement Openings	5,800	38.3	49.2
Total Job Openings	8,400	55.2	60.3

CENSUS – 1971 and 1981 (%)



1981 CENSUS – Main Industries of Employment (%)

Construction (95) - Construction (95)	Manufacturing (2)	Services (1)

Geographic Distribution of Employment – 1981 (%)

Newfoundland	0.8	Ontario	27.4
Prince Edward Island	0.2	Manitoba	4.2
Nova Scotia	2.1	Saskatchewan	6.1
New Brunswick	1.0	Alberta	22.4
Quebec	13.4	British Columbia	22.3

For further information, contact:

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85 Albert St., 2nd Floor
Ottawa, Ontario K1P 6A4
(613) 236-9455

Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
- College (1981-86)	13	23.2
- University (1981-86)	0	0.0
Trade Vocational Schools (1983/84 only)	43	76.8

Plasterers and Related Occupations

8784

Job Environment

This occupational grouping encompasses plasterers, lathers, drywall installers and tapers. Plasterers apply plaster, stucco and other materials to building surfaces. The materials are usually in the form of a slurry, which is applied and then given the appropriate texture. Lathers fasten metal, wood or gypsum lath to structural surfaces to provide a base for plaster or other materials. Sometimes they build complex-shaped frames to which they attach the lath. Drywall installers trim and attach drywall, a material composed of a sheet of plaster glued between two sheets of heavy paper. After drywall is applied, it must be finished by applying tape or other material over corners and the joints between sheets. This is the function of a drywall taper or finisher.

Plasterers and the others in this group work in a variety of construction settings, residential and non-residential, union and non-union, as employees and as independent contractors. Except for the application of stucco plastering, all plastering is done indoors, frequently in dusty, poorly lit conditions.

Educational Background and Skills

The provinces of Quebec, Ontario, Saskatchewan and British Columbia offer apprenticeship programs in plastering. In Quebec, certification is compulsory. Admission to apprenticeship in Ontario requires Grade 8; British Columbia requires Grade 10. There is no educational requirement for entrance to the other provincial apprenticeship programs in plastering. For lathers, apprenticeship training is offered in Quebec, Ontario, Manitoba and Alberta. In Ontario, Grade 10 is required, while in Manitoba and Alberta, Grade 9 is a prerequisite. In Quebec, tradesman's qualification is compulsory for lathers. An apprenticeship program in drywall finishing is offered only in British Columbia; Grade 10 is a prerequisite. Apprenticeship programs in drywall installing are available in Manitoba and British Columbia. The minimum educational requirement for these is Grade 9 and Grade 10, respectively.

Plastering work is often physically demanding and requires good general health and stamina, and good vision.

Nature of Supply

Most workers enter the plastering trade between 18 and 20 years of age. Some plasterers leave their occupation for another one in their mid-to-late 40s. While the number of women plasterers is small, their numbers have grown markedly over recent years. Immigrant plaster workers have been a steady but minor source of occupational supply.

Market Conditions and Job Prospects

Employment in the plastering occupations fell during the early 1980s but has since rebounded. Faster-than-average growth is expected over the 1987 to 1995 period. In addition, some positions will come open to replace retirees, although there is not an unusually large number of older plasterers or drywallers currently approaching retirement.

Drywall has almost replaced plaster as a finishing material, except for special decorative applications; this will result in more job opportunities for workers skilled in drywall installation and taping.

Plastering work is somewhat seasonal, but because most jobs are indoors, employment fluctuates less than in other construction trades. It is, however, vulnerable to periodic recessions in construction activity. Most work is full-time, although the incidence of part-time work tripled to 15% between 1971 and 1981.

Earnings

The Canadian Construction Association reported the following basic union hourly wage rates for plasterers in 1987:

	Plasterer	Drywall
British Columbia	$20.25	$19.38
Manitoba	17.00	17.00
Quebec	17.64	
Ontario — Sudbury	15.57	18.60
— Toronto	17.27	19.25
— Windsor	17.73	17.82
New Brunswick (1986)	15.40	
Nova Scotia	15.50	
Newfoundland (1986)	16.34	

Painters, Paperhangers and Related Occupations 8785

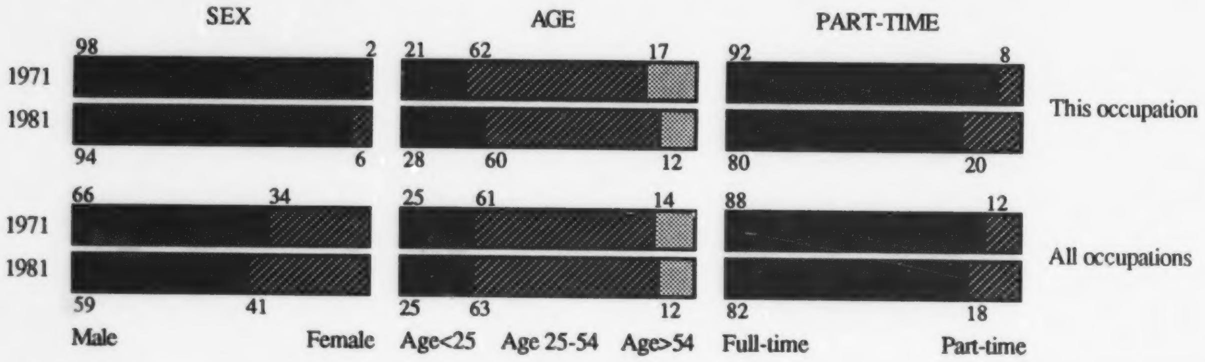
Employment Trends and Projections

	Employment			Average Annual Growth Rate (%)		
	1981	1986	1995	1971-81	1981-86	1987-95
This Occupation	33.200	38.100	38.700	-0.1	2.8	0.2
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation		All Occupations
	1987-95	% of 1987 Jobs	% of 1987 Jobs
Net New Job Openings	600	1.7	11.1
Replacement Openings	19.500	51.3	49.2
Total Job Openings	20.100	52.9	60.3

CENSUS – 1971 and 1981 (%)



1981 CENSUS – Main Industries of Employment (%)

Construction (75)
- Construction (75)

Services (8)
- Education (2)
- Hospitals (2)
- Accommodation + Food (1)

Manufacturing (8)
- Metal Fabricating (1)

Geographic Distribution of Employment – 1981 (%)

Newfoundland	1.1	Ontario	36.7
Prince Edward Island	0.7	Manitoba	4.8
Nova Scotia	3.9	Saskatchewan	3.8
New Brunswick	2.5	Alberta	13.6
Quebec	20.0	British Columbia	12.6

For further information, contact:

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Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
- College (1981-86)	73	39.5
- University (1981-86)	30	16.2
Trade Vocational Schools (1983/84 only)	82	44.3

Painters, Paperhangers and Related Occupations 8785

Job Environment

Painters, paperhangers and decorators apply paint, wallpaper and fabrics to walls and ceilings. They work in most types of construction projects, as well as in maintenance.

Painters first prepare surfaces by removing old paint or wallpaper and repairing old plaster and defective woodwork. Next, they lay protective sheeting over exposed flooring, furniture and rugs. After preparing their equipment, they brush, roll or spray on the paint. At the end of the day, they are responsible for tidying up the work area.

Painters must often stand, bend and crouch for long periods and work at heights. While heavy lifting is not common, painters still have to move ladders and paint containers.

Employment is usually on a project-to-project basis. Painters often work as self-employed contractors or as members of a construction union, in which case they receive work from a union hiring hall on a rotating basis. Painters may also be employed on a permanent basis by organizations in order to keep buildings or other large structures in good condition.

Educational Background and Skills

Apprenticeship programs in painting, lasting from three to four years, are offered in all provinces. The minimum educational requirement for entrance is Grade 8 in Newfoundland, Nova Scotia and New Brunswick; Grade 9 in Manitoba and Alberta; and Grade 10 in Prince Edward Island, Ontario, Saskatchewan and British Columbia. Certification is compulsory in Quebec.

Nature of Supply

The painting trade is dominated by men, but more women have been entering the occupation, as indicated by the increase in their numbers over the 1971 to 1981 period. This trend is expected to continue. The number of immigrants and foreign workers entering Canada with the stated intention of working as painters has been steady but small, when compared to the size of the work force in this trade.

Individuals commonly enter the painting trade between 17 and 20 years of age, and leave the trade somewhat early in life, compared with workers in other construction trades.

Market Conditions and Job Prospects

Employment among painters fell during the recession of the early 1980s, but was approaching the 1981 level again by 1986. It should continue to grow until 1995. Replacement openings resulting from withdrawals from the painting labour force over this period should provide further job opportunities for people wishing to enter the trade.

The painting trade is susceptible to overall economic activity, and particularly to construction activity. Employment for painters who work on new structures fluctuates considerably, because it depends on the ever-changing volume of new construction. The re-painting of existing structures provides a less volatile base of employment for painters.

The use of new, long-lasting paints and more efficient methods of paint application have resulted in a need for relatively fewer painters. Seasonal factors also affect employment: outside work is much less common during the winter months. Some part-time painting jobs exist.

Earnings

The Canadian Construction Association reported the following basic union hourly wage rates for painters in 1987:

British Columbia	$19.29
Manitoba	15.95
Ontario – Kitchener	16.35
– Sault Ste. Marie	16.40
– Toronto	18.00
Quebec	16.66
Prince Edward Island (1986)	12.35
Nova Scotia	16.09
New Brunswick	14.38
Newfoundland	13.51

Insulating Occupations, Construction 8786

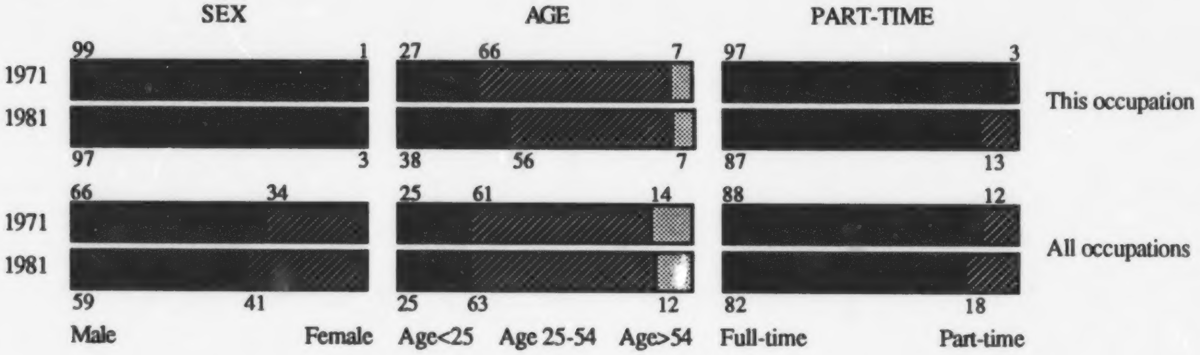
Employment Trends and Projections

	Employment			Average Annual Growth Rate (%)		
	1981	1986	1995	1971-81	1981-86	1987-95
This Occupation	6.000	4.800	6.500	7.2	−4.3	3.1
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation		All Occupations
	1987-95	% of 1987 Jobs	% of 1987 Jobs
Net New Job Openings	1.400	27.7	11.1
Replacement Openings	2.000	40.0	49.2
Total Job Openings	3.500	67.7	60.3

CENSUS – 1971 and 1981 (%)



1981 CENSUS – Main Industries of Employment (%)

Construction (82)
- Construction (82)

Manufacturing (12)
- Chemicals + Chem Prod (3)
- Pulp + Paper (1)
- Rubber + Plastics (1)

Mining (1)

Geographic Distribution of Employment – 1981 (%)

Newfoundland	0.9	Ontario	33.9
Prince Edward Island	0.1	Manitoba	3.8
Nova Scotia	4.0	Saskatchewan	3.3
New Brunswick	2.5	Alberta	20.5
Quebec	19.4	British Columbia	11.8

For further information, contact:

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Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
- College (1981-86)	13	38.2
- University (1981-86)	0	0.0
Trade Vocational Schools (1983/84 only)	21	61.8

Insulating Occupations, Construction

8786

Job Environment

This occupational group includes air-conditioning equipment insulators, insulation blowers, construction insulators and pipe coverers, whose job is to prevent the loss or transmission of heat, air or sound.

In houses, this involves stuffing insulating bats between wall studs and covering walls with a plastic vapour barrier, or blowing loose insulation into the attic using a compressor. Sometimes insulators blow insulating material into the cavities of existing walls. Rigid foam insulation is either nailed or glued onto walls and then covered with a sheathing material. In commercial buildings, workers may use a hose to spray foam insulation onto a wire mesh. The insulation can then be finished to provide an attractive appearance. Boilers, heating pipes and air conditioners are also insulated to prevent unwanted transfer of heat. An insulating blanket or sheath is cut to size and placed over the heat-radiating part. The insulation is then taped, sewn or wired securely into place.

Insulators work both indoors and outdoors on construction sites, and in existing buildings, whose insulation is being upgraded. They must often work in cramped dusty areas, such as attics, or stand on scaffolding or ladders for long periods of time. Since there is some health risk in removing older types of insulation such as asbestos or urea formaldehyde foam insulation, insulators need to take proper safety precautions.

Employment is usually on a project-by-project basis. Insulators can expect periods of unemployment between projects.

Educational Background and Skills

The usual method of entering this profession is through an apprenticeship program consisting of three or four years of on-the-job training combined with some in-school training. Only Quebec has compulsory certification. Most people enter this occupation after graduation from high school, college or vocational school. Technical courses such as those in carpentry, sheet metal and pipe fitting are recommended prior to training as an insulator.

Insulation workers must have a knowledge of hand tools and power tools. Although a great deal of strength is not required for this occupation, co-ordination and the ability to stand for long periods of time is important. Workers who retrofit older buildings should be able to work unobtrusively among building occupants.

Nature of Supply

In 1981, over one-third of all insulators were under the age of 25 years and less than one-quarter were 40 years of age or over. There is a high degree of worker movement into and out of this occupation. Available statistics indicate that many people enter this occupation and then leave after only a few years, suggesting that many people use this as an entry-level occupation. The number of women in this group is considerably below average, but still in line with that in other construction-related occupations.

Market Conditions and Job Prospects

Employment in this occupation grew at about twice the rate of overall employment during the 1970s, but fell during the recession of the early 1980s. The rapid growth during the 1970s can be attributed to rising energy prices and government incentive programs, which encouraged the refitting of older buildings with insulation and the upgrading of insulation standards for new buildings. The incentive programs are not likely to be repeated and most older buildings have now been refitted, so it is unlikely that the 1970s boom will reoccur. However, higher insulating standards for new buildings should encourage employment growth, which is projected to be above average and in line that in other construction-related occupations. Growth will be concentrated in central Canada: Quebec and Ontario currently account for most of the employment in this occupation, and construction of new buildings is expected to be concentrated in these provinces.

Despite this relatively optimistic employment outlook, this occupation suffers from both seasonal and business cycle swings, which can lead to high levels of unemployment.

Earnings

The Canadian Construction Association reported the following basic union hourly wage rates for insulators in 1987:

British Columbia	$18.31
Manitoba	16.60
Ontario — Central	21.01
— Northwestern	20.39
— Eastern	19.18
Quebec	18.72
Nova Scotia	20.93
New Brunswick	17.55

It should be noted, however, that many insulators work for small, non-unionized, contracting companies and that the seasonal nature of insulating work affects annual incomes.

Roofing, Waterproofing and Related Occupations

8787

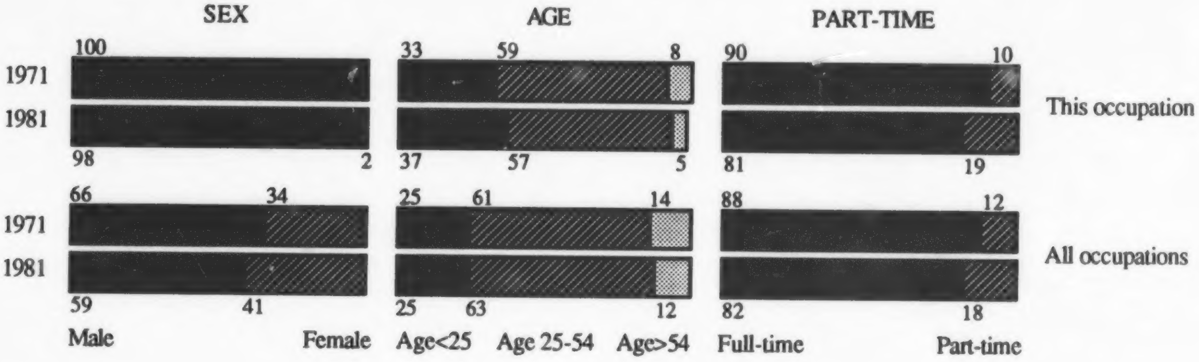
Employment Trends and Projections

	Employment			Average Annual Growth Rate (%)		
	1981	1986	1995	1971-81	1981-86	1987-95
This Occupation	9,900	12,000	10,800	6.2	3.9	0.0
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation		All Occupations
	1987-95	% of 1987 Jobs	% of 1987 Jobs
Net New Job Openings	0	0.0	11.1
Replacement Openings	3,300	30.9	49.2
Total Job Openings	3,300	30.9	60.3

CENSUS – 1971 and 1981 (%)



1981 CENSUS – Main Industries of Employment (%)

Construction (93) - Construction (93)	Manufacturing (4)	Services (1)

Geographic Distribution of Employment – 1981 (%)

Newfoundland	1.1	Ontario	40.0
Prince Edward Island	0.2	Manitoba	3.3
Nova Scotia	2.4	Saskatchewan	3.7
New Brunswick	2.7	Alberta	14.8
Quebec	14.2	British Columbia	17.2

For further information, contact:

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Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
- College (1981-86)	11	16.7
- University (1981-86)	5	7.6
Trade Vocational Schools (1983/84 only)	50	75.8

Roofing, Waterproofing and Related Occupations

8787

Job Environment

The work of roofers and waterproofers involves covering roofs with metal, asphalt or wooden shingles, tar, gravel or other materials, and applying waterproofing compounds to underground surface structures, such as concrete foundations. Roofers normally work on residential buildings. After nailing shingles into place, they fasten metal stripping, known as flashing, around chimneys and pipes, and caulk the joints to prevent water leaks.

Roofs of commercial buildings are usually finished either by securing sheets of metal or, on flat roofs, by applying alternate layers of hot tar and roofing felt. In the latter case, a helper on the ground melts the tar and pumps or hoists it to the roof where the roofer spreads it with a mop or brush.

Roofers are exposed to high temperatures in the summer. They have one of the highest rates of injury in the construction trades, owing to the frequency of slips and falls.

Educational Background and Skills

Most people enter this trade through on-the-job training or apprenticeship programs, which are offered in Alberta, Saskatchewan, Manitoba and New Brunswick. Only in Quebec and British Columbia is certification compulsory. The minimum educational requirement ranges from Grade 8 to Grade 10. Roofers usually start out as helpers for an experienced roofer. After a number of years they may advance to a supervisory position, or start their own roofing business.

Roofers should be in good physical condition, have a good sense of balance and be comfortable working at great heights or on sloped roofs.

Nature of Supply

As in most construction trades, the majority of workers are men. The 25 to 54 age group is larger in this occupation than in others. Many roofers tend to leave the trade in their mid- to late 40s, perhaps to seek less strenuous and less risky employment.

Market Conditions and Job Prospects

Roofing work is highly seasonal, because of the need for dry working conditions. This means that roofers can expect to experience periods of unemployment even in the summer. On the other hand, when the weather is good and building activity is high, they may work considerable overtime.

Employment in new construction is vulnerable to changes in the level of construction activity. However, since roof rebuilding and repair accounts for a large proportion of roofing work, there will still be some demand for roofers, even during recessions.

Employment growth in this occupation was stronger than average during the 1970s. It fell dramatically during the 1982 recession and has only just recently returned to the 1981 level. The medium-term outlook is for minimal new job growth and higher-than-average attrition rates.

Earnings

The Canadian Construction Association reported the following basic union hourly wage rates for roofers in 1987:

British Columbia	$18.96
Manitoba	16.16
Ontario – Niagara	17.03
– Peterborough	17.85
– Toronto	19.72
Quebec	17.40
Nova Scotia	16.16
New Brunswick	13.44
Newfoundland	16.34

Pipefitting, Plumbing and Related Occupations 8791

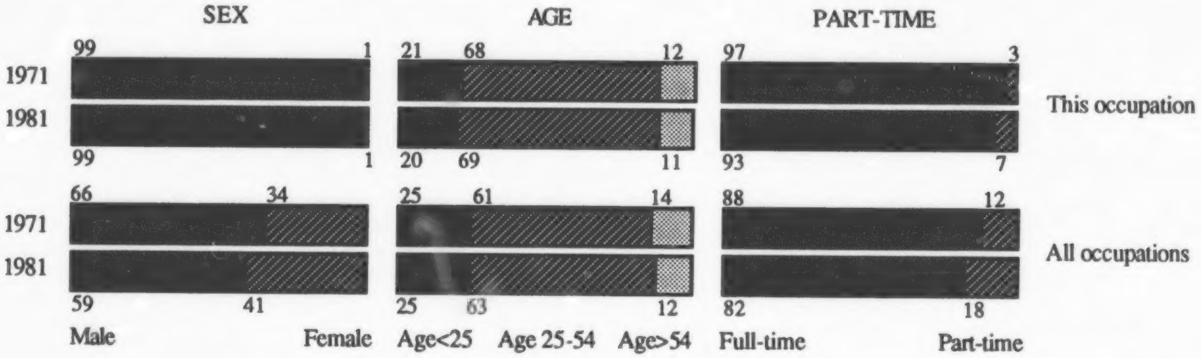
Employment Trends and Projections

	Employment			Average Annual Growth Rate (%)		
	1981	1986	1995	1971-81	1981-86	1987-95
This Occupation	47,500	44,100	50,700	1.7	-1.5	1.6
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation		All Occupations
	1987-95	% of 1987 Jobs	% of 1987 Jobs
Net New Job Openings	6,100	13.7	11.1
Replacement Openings	24,700	55.3	49.2
Total Job Openings	30,800	69.0	60.3

CENSUS - 1971 and 1981 (%)



1981 CENSUS - Main Industries of Employment (%)

Construction (60)
- Construction (60)

Manufacturing (16)
- Pulp+Paper (4)
- Primary Metals (2)
- Chemicals+Chem Prod (2)

Trans+Stor+Comm+Util (8)
- Water+Oth Utilities (2)
- Electric Power (2)
- Gas Distribution (2)

Geographic Distribution of Employment - 1981 (%)

Newfoundland	1.6	Ontario	33.0
Prince Edward Island	0.4	Manitoba	3.2
Nova Scotia	3.0	Saskatchewan	3.8
New Brunswick	2.6	Alberta	17.3
Quebec	22.6	British Columbia	12.2

For further information, contact:

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Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
- College (1981-86)	15	10.1
- University (1981-86)	5	3.4
Trade Vocational Schools (1983/84 only)	128	86.5

Pipefitting, Plumbing and Related Occupations

8791

Job Environment

This occupational group includes workers in the piping trades – plumbers, pipefitters, steamfitters, gasfitters and sprinklerfitters. While all these trades concern piping systems, each has its own primary focus. Plumbers generally work in a residential or commercial setting. Pipefitters work at industrial applications. Steamfitters and gasfitters are specialists in the kind of installations on which they work. Sprinklerfitters install sprinkler systems in buildings as fire protection. Some plumbers and pipefitters are employed in a maintenance capacity, but most work at a construction project.

Piping tradespeople must understand and follow detailed plans. They cut and shape pipes, install fittings and supports, and modify structures to accommodate their work. They are proficient in the use of a wide range of hand tools, powered machines, torches and welding apparatus. By acquiring peripheral skills, such as general welding or basic electricity, they can improve their employability. Working conditions in the piping trades are often cramped and uncomfortable, and may require working at considerable heights. Minor injuries are not uncommon. Most piping tradespeople are employed by contractors or builders on a project-to-project basis. Many are members of a construction union and obtain their work at a union hiring hall.

Educational Background and Skills

All provinces offer apprenticeship programs in at least one of the piping trades. All offer four- or five-year programs in plumbing, and most stipulate either Grade 9 or Grade 10 as a prerequisite. Certification is compulsory in all provinces except Newfoundland and Manitoba. All provinces offer steamfitting apprenticeships. These also range in length from four to five years. Grade 10 is a requirement except in New Brunswick, where the prerequisite is Grade 8, and in Quebec and Alberta, where no formal requirement exists. Gasfitting apprenticeships are available in Alberta and British Columbia, and require Grades 9 and 10, respectively. Gasfitting certification is compulsory in Alberta. All provinces offer sprinklerfitting apprenticeships. Grade 10 is required for this program, except in New Brunswick, where Grade 8 is required; no prerequisite exists in Quebec or in Alberta. Prospective piping tradespeople should be in good physical condition and have good spatial perception.

Nature of Supply

Most workers in the piping trades are men, although in recent years women have accounted for a growing number of piping tradespeople.

In past years a significant number of migrant plumbers and pipefitters have been entering Canada on permanent or temporary visas. This source of new entrants to the occupation amounts to no more than 10% of the number entering these trades via apprenticeship.

Most piping tradespeople enter their occupations between 19 and 22 years of age, and retire or take up other occupations rather early in life in comparison with other construction tradespeople. As a result, a constant number of replacement openings are available.

Market Conditions and Job Prospects

Employment in the piping trades is expected to grow significantly over the 1987 to 1995 period. Future replacement openings should contribute further to the number of available job opportunities. The demand for piping tradespeople in construction activities is expected to increase appreciably over the forecast period.

As is the case in most of the construction occupations, employment in the piping trades is subject to some seasonal variation. However, since most piping work is indoors or under cover, seasonality is not pronounced. Because of the nature of their work, piping tradespeople can expect spells of unemployment.

Earnings

The Canadian Construction Association reported the following basic union hourly wage rates for plumbers in 1987:

British Columbia	$20.02
Manitoba	20.59
Ontario – Oshawa	19.55
– Ottawa	19.74
– Toronto	20.41
Quebec	18.88
Prince Edward Island	15.89
Nova Scotia	20.37
New Brunswick	18.35
Newfoundland (1986)	17.37

Structural Metal Erectors 8793

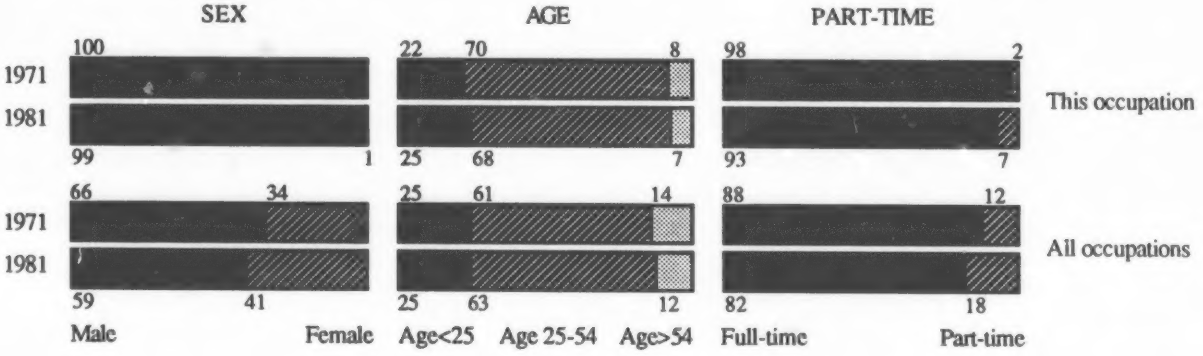
Employment Trends and Projections

	Employment 1981	Employment 1986	Employment 1995	Average Annual Growth Rate (%) 1971-81	Average Annual Growth Rate (%) 1981-86	Average Annual Growth Rate (%) 1987-95
This Occupation	8,600	7,000	8,900	4.8	-4.1	2.6
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation 1987-95	This Occupation % of 1987 Jobs	All Occupations % of 1987 Jobs
Net New Job Openings	1,600	22.4	11.1
Replacement Openings	3,100	43.1	49.2
Total Job Openings	4,800	65.5	60.3

CENSUS - 1971 and 1981 (%)



1981 CENSUS - Main Industries of Employment (%)

Construction (52)
- Construction (52)

Manufacturing (28)
- Metal Fabricating (16)
- Primary Metals (4)
- Machinery (2)

Trans + Stor + Comm + Util (7)
- Electric Power (3)
- Rail Transport (2)
- Misc Transport (1)

Geographic Distribution of Employment - 1981 (%)

Newfoundland	1.5	Ontario	29.2
Prince Edward Island	0.1	Manitoba	4.1
Nova Scotia	2.7	Saskatchewan	4.8
New Brunswick	3.1	Alberta	20.5
Quebec	18.8	British Columbia	15.1

For further information, contact:

Canadian Construction Association
85 Albert St., 2nd Floor
Ottawa, Ontario K1P 6A4
(613) 236-9455

Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
- College (1981-86)	9	100.0
- University (1981-86)	0	0.0
Trade Vocational Schools (1983/84 only)	0	0.0

Structural Metal Erectors 8793

Job Environment

Workers in this occupational category erect and fabricate structural steel assemblies, such as the steel frames of buildings, bridges and tanks, and they also shape and assemble reinforcing rods used in the preparation of reinforced concrete. In erecting steel assemblies, they work according to detailed plans. The work is generally broken into stages with separate teams, or gangs, performing each function. As a job progresses, any one gang member may perform all phases of the work on a rotating basis. Structural ironworkers perform many of their duties at heights, where there is considerable danger of falling or of being hurt by falling objects. They are often exposed to adverse weather conditions.

Reinforcing ironworkers construct steel latticework using reinforcing rods around which concrete is poured. The work can be heavy and dangerous.

Structural metal erectors work on a project-by-project basis. They frequently travel long distances from job to job. Many are members of a construction union and often obtain work from a union hiring hall on a rotating basis.

Educational Background and Skills

Apprenticeship programs in ironwork are offered in Newfoundland, Quebec, Ontario, Alberta and British Columbia. They range in duration from four years in Newfoundland and three years in Ontario, Alberta and British Columbia to two years in Quebec. In addition, Quebec offers a one-year apprenticeship in reinforcing ironwork, for which there is no educational requirement. Certification of ironworkers is compulsory in Quebec.

Prospective ironworkers should be very agile, in excellent physical condition and they should have a good sense of balance. They also must have no irrational fear of heights and must unfailingly observe safe working conditions.

Nature of Supply

Most ironworkers enter the occupation between the ages of 17 and 20. Only a small proportion of them are women, although female representation is rising. Immigrants have been only a minor source of new entrants to the occupation over the last few years.

Market Conditions and Job Prospects

Employment among ironworkers decreased as a result of the economic slowdown of the early 1980s; however, by 1986, employment was returning to pre-recession levels. Further improvement is expected over the 1987 to 1995 period. This, coupled with the anticipated number of retirements, should provide a number of job opportunities for prospective ironworkers.

This occupation is susceptible to economic conditions affecting construction and construction investment. When work is scarce, ironworkers, like other construction tradespeople, may become unemployed while waiting for their next job. Work is less plentiful during the winter months.

Earnings

The Canadian Construction Association reported the following basic union hourly wage rates for ironworkers in 1987:

British Columbia	$18.98
Alberta (1986) — structural	18.65
Saskatchewan (1986) — structural	19.05
— reinforcing	17.76
Manitoba — structural	18.80
— reinforcing	16.65
Ontario — Ottawa	19.09
— Thunder Bay	18.22
— Toronto	18.41
Quebec — structural	18.88
— ornamental	17.71
— reinforcing	16.75
Nova Scotia — structural	20.25
— reinforcing	17.12
New Brunswick — structural	18.15
Newfoundland (1986) — structural	16.02
— reinforcing	14.92

Glaziers

8795

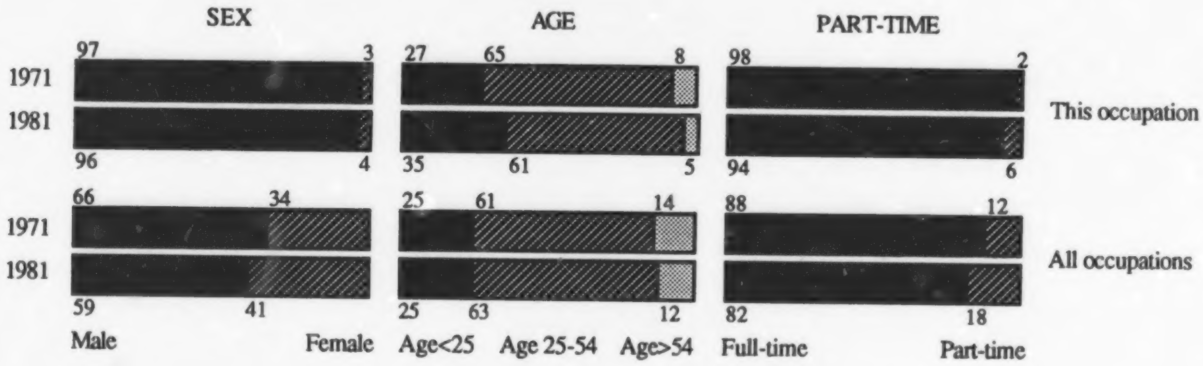
Employment Trends and Projections

	Employment 1981	Employment 1986	Employment 1995	Average Annual Growth Rate (%) 1971-81	Average Annual Growth Rate (%) 1981-86	Average Annual Growth Rate (%) 1987-95
This Occupation	5.400	5.500	6.300	9.1	0.4	1.5
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation 1987-95	This Occupation % of 1987 Jobs	All Occupations % of 1987 Jobs
Net New Job Openings	700	12.8	11.1
Replacement Openings	1.600	27.9	49.2
Total Job Openings	2.300	40.7	60.3

CENSUS - 1971 and 1981 (%)



1981 CENSUS - Main Industries of Employment (%)

Construction (42) - Construction (42)	Trade (33) - Retail Trade (24) - Wholesale Trade (8)	Manufacturing (21) - Non-Met Mineral Prod (8) - Metal Fabricating (6) - Wood (4)

Geographic Distribution of Employment - 1981 (%)

Newfoundland	1.1	Ontario	33.7
Prince Edward Island		Manitoba	4.4
Nova Scotia	2.6	Saskatchewan	3.5
New Brunswick	1.9	Alberta	17.8
Quebec	20.5	British Columbia	14.1

For further information, contact:

Canadian Construction Association
85 Albert St., 2nd Floor
Ottawa, Ontario K1P 6A4
(613) 236-9455

Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
- College (1981-86)	17	100.0
- University (1981-86)	0	0.0
Trade Vocational Schools (1983/84 only)	0	0.0

Glaziers

8795

Job Environment

Glaziers cut and install glass for use in furniture, fixtures and buildings, including decorative stained glass windows and fixtures.

The work can vary significantly. Structural glass installers work on the outside of large office buildings on a scaffold or moveable platform. The glass is raised by a crane and the glaziers guide and position it by hand. Factory glaziers cut and install glass in wooden or metal frames for such products as prefabricated windows, patio doors, shower stalls and glass display cases. Custom work, ranging from replacing the glass in an odd-sized window or store front to creating stained glass patterns, may also be carried out either in a factory or in a retail location.

Educational Background and Skills

Glaziers must be able to use many types of tool in their trade, including glass cutters, putty knives, power drills and grinders. In addition, factories are beginning to add automated machinery to produce air-tight double- and triple-paned windows. Glaziers who work on commercial buildings must be prepared to work at great heights, often in poor weather, and must be strong enough to manoeuvre heavy sheets of glass into place. Glaziers working with stained glass need artistic skills.

All provinces west of Quebec have apprenticeship programs, consisting of four years of on-the-job training, or 1,800 to 2,000 hours plus 22 to 24 weeks of classes. British Columbia only requires 12 weeks of class. Completion of Grade 9 or Grade 10 is usually required before acceptance into the program.

Nature of Supply

The main sources of supply for this entry-level occupation are apprenticeship programs. This occupation is made up primarily of males, although there has been some female participation over the last few years. The age structure is slightly tilted towards young and prime-age people, with most people starting work between the ages of 16 and 22. The work is mostly full-time.

Market Conditions and Job Prospects

The medium- to long-term employment prospects for this occupation are about average. The age structure suggests that attrition because of retirement and death is below average: available statistics indicate that glazers tend to remain in the trade until retirement age. The outlook for replacement openings is poorer than is the case with most occupations.

Since job opportunities for glaziers are dependent upon activity in the construction industry, which is very sensitive to changes in economic conditions, glaziers can expect periods of unemployment during economic downturns. Glaziers who work in construction can also expect some seasonal unemployment as building slows down in the winter months. However, those who work in factories and retail locations are less affected.

Over the last few years in residential construction, most of the windows and glass doors have been prefabricated in a factory by glaziers. These are then installed in houses by carpenters. However, construction still accounts for over 40% of all employment of glaziers, followed by employment in the wholesale-retail trade and manufacturing industries.

Earnings

The Canadian Construction Association reported the following basic union hourly wage rates for glaziers in 1987:

British Columbia	$19.68
Ontario — Kitchener	15.62
— Thunder Bay	16.71
— Toronto	19.21
Prince Edward Island	11.70
Nova Scotia	15.46

Air Pilots, Navigators and Flight Engineers

9111

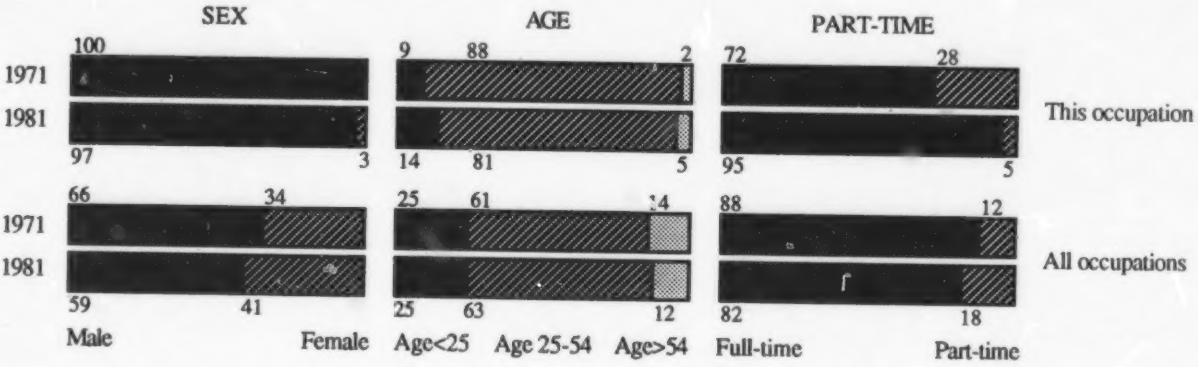
Employment Trends and Projections

	Employment 1981	Employment 1986	Employment 1995	Average Annual Growth Rate (%) 1971-81	Average Annual Growth Rate (%) 1981-86	Average Annual Growth Rate (%) 1987-95
This Occupation	8.400	7.900	8.100	7.0	-1.1	0.1
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation 1987-95	This Occupation % of 1987 Jobs	All Occupations % of 1987 Jobs
Net New Job Openings	100	0.8	11.1
Replacement Openings	2.200	27.2	49.2
Total Job Openings	2.300	28.0	60.3

CENSUS – 1971 and 1981 (%)



1981 CENSUS – Main Industries of Employment (%)

Trans + Stor + Comm + Util (81)
- Air Transport (79)

Public Administration (4)
- Provincial Admin (2)
- Federal Admin (2)

Manufacturing (3)
- Aircraft + Parts (1)

Geographic Distribution of Employment – 1981 (%)

Newfoundland	2.2	Ontario	29.8
Prince Edward Island	0.2	Manitoba	6.0
Nova Scotia	1.7	Saskatchewan	2.7
New Brunswick	1.6	Alberta	12.5
Quebec	18.3	British Columbia	22.4

Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
- College (1981-86)	36	67.9
- University (1981-86)	17	32.1
Trade Vocational Schools (1983/84 only)	0	0.0

Air Pilots, Navigators and Flight Engineers

9111

Job Environment

This occupational group includes pilots-in-command, navigators, flight engineers and helicopter pilots. Pilots manoeuvre complex aircraft, sometimes in difficult weather conditions, and are responsible for passenger lives. Their work includes preparing the flight plan; monitoring weather conditions, plane requirements and system functions; and checking the aircraft exterior. To carry out their tasks, pilots must have a knowledge of meteorology, a good working knowledge of aircraft engines, instruments and radio equipment; and skills in navigation. Their job requires them to be away from home for days at a time. Flight engineers operate and monitor the various electronic and mechanical systems on large aircraft.

A helicopter pilot's job is more varied, and includes aerial photography, surveying, fire-ranging, crop dusting, marine rescue and transportation of executives and even hospital patients. These pilots may work long, irregular hours.

Educational Background and Skills

The minimum level of education required to become an air pilot is generally a two- to three-year community college program in aviation technology. In addition, the candidate must obtain a valid commercial pilot's licence and a radiotelephone operator's certificate before being licensed by Transport Canada as a pilot.

Nature of Supply

The major source of new supply to this occupation is the aviation technology course provided by community colleges. Early retirees from the military, immigrants and labour force re-entrants from the household sector are other sources of supply to this occupation.

This field remains dominated by men although the male proportion of this work force has been declining slowly since 1971. The majority of licensed commercial air pilots work in Quebec, Ontario and British Columbia. The pilot-to-population ratio is significantly higher in British Columbia than in the other provinces or territories. As a result of younger new entrants and earlier retirements, the age structure in these occupations is becoming younger over time. The average age of air pilots declined from 41 in 1971 to 37 in 1981. Most individuals enter the occupation between the ages of 25 and 29 and begin to leave, in significant numbers, between the ages of 45 and 49, for an average career span of 20 years.

Market Conditions and Job Prospects

Employment growth for pilots was moderate during the 1970s, but declined during the early 1980s as a result of the 1981 recession. Future employment growth is expected to be marginal up until 1995, based on anticipated slow growth in the air transport industry. Nearly all job openings will be vacancies left by departing personnel.

Labour market conditions for pilots have been poor over the last few years, as indicated by a doubling in unemployment between 1981 and 1985. Employment in this occupational group is susceptible to fluctuations in the general economic environment. There is no seasonal variation. Technological changes in the work place have either been neutral or have favoured employment. While most pilots work in the air transport service industry, a number of helicopter pilots are found in public administration, forestry, mining and the oil and gas industries.

The career path of commercial pilots leads from flight engineer through co-pilot to a captain's position which has responsiblity for most of the flying.

Earnings[1]

There is tremendous variation in pilots' earnings. Pilots flying large aircraft on international flights earn the most, while secondary officers with small domestic airlines earn the least. Annual salaries depend on a number of factors, including aircraft speed and gross weight, and whether flights involve day or night flying. The minimum annual salary for a first officer on a small aircraft is $15,384, while captains piloting the largest aircraft on international routes earn as much as $150,000 annually. The average income is between $37,000 and $83,000 for both commercial pilots and employees of remote mail carrier airlines. Most of the 2,300 commercial helicopter pilots earn over $25,000 annually.

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[1] Canadian Air Line Pilots Association Wage Summary Analysis, June 1986.

Air Transport Operating Support Occupations 9113

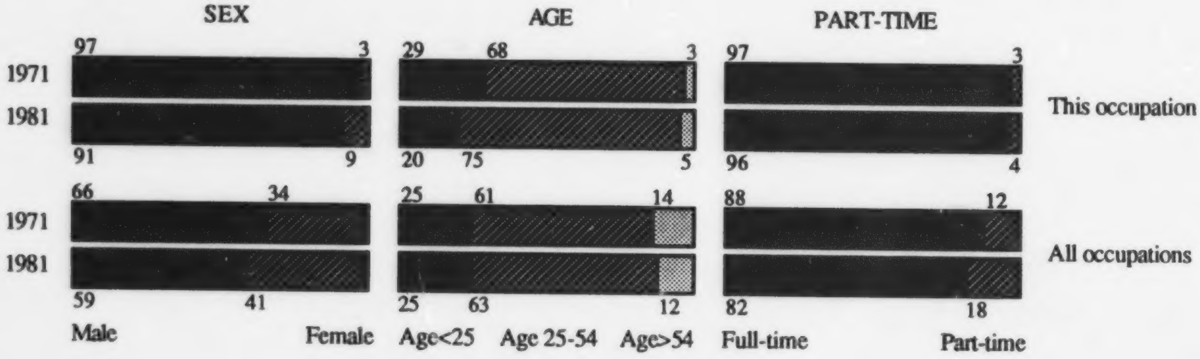
Employment Trends and Projections

	Employment 1981	Employment 1986	Employment 1995	Average Annual Growth Rate (%) 1971-81	Average Annual Growth Rate (%) 1981-86	Average Annual Growth Rate (%) 1987-95
This Occupation	6.100	5.800	5.900	5.2	-1.0	0.1
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation 1987-95	This Occupation % of 1987 Jobs	All Occupations % of 1987 Jobs
Net New Job Openings	100	1.1	11.1
Replacement Openings	1.700	30.0	49.2
Total Job Openings	1.800	31.1	60.3

CENSUS - 1971 and 1981 (%)



1981 CENSUS - Main Industries of Employment (%)

Trans + Stor + Comm + Util (74) - Air Transport (73)	Public Administration (20) - Federal Admin (17) - Provincial Admin (2)	Trade (3) - Wholesale Trade (3)

Geographic Distribution of Employment - 1981 (%)

Newfoundland	7.2	Ontario	25.8
Prince Edward Island	0.4	Manitoba	6.2
Nova Scotia	4.4	Saskatchewan	2.4
New Brunswick	4.9	Alberta	10.3
Quebec	21.7	British Columbia	14.2

Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
- College (1981-86)	2	16.7
- University (1981-86)	10	83.3
Trade Vocational Schools (1983/84 only)	0	0.0

Air Transport Operating Support Occupations 9113

Job Environment

This occupational group, which includes air traffic controllers, flight dispatchers, crew schedulers and airline radio operators, is responsible for aircraft ground support, including control of aircraft movement, analysis and compilation of weather reports and other flight plan information, and radio communication with aircraft crews.

Educational Background and Skills

To qualify as a flight dispatcher or air traffic controller, candidates require good health and a secondary school diploma. They must also undergo preparatory training in meteorology, navigation, communication procedures, aircraft performance and air regulations. After formal training, between two and four years of on-the-job training in a junior position are required before the candidate may obtain a licence or certificate. Flight dispatchers receive their certificate from the airline, while air traffic controllers are awarded a compulsory licence by Transport Canada after presenting satisfactory evidence of experience and having passed a qualifying examination.

Nature of Supply

The major sources of supply for this occupation are individuals leaving the household and returning to the labour force to take the above training. Military personnel taking early retirement are another source of supply. The education system and immigration are minor contributors.

Although this occupation is still dominated by men, it has been chosen by an increasing number of women over the past decade. The majority of flight dispatchers and air traffic controllers work in Quebec and Ontario, while the highest number relative to population are in British Columbia and Newfoundland. The average age has varied marginally since 1971, although workers under 25 increasingly account for a smaller proportion of all employees. The majority of workers enter this occupation between the ages of 25 and 29 and begin to leave between the ages of 40 and 44, for a shorter-than-average career span of 15 years.

Market Conditions and Job Prospects

Employment growth in these occupations is projected to be much slower than the overall average for the labour market, based on the outlook for the air transport industry where employment in this occupation is heavily concentrated. This would be a departure from trends observed in the 1970s, when employment growth rates for this group were slightly above average.

Over the projection period, 1,700 job openings will result from the need to replace personnel leaving the work force because of death, retirement, or to return to the education system or the household.

Despite the relatively slow employment growth rates observed in recent years, labour market conditions for this occupational group are generally good. Unemployment is lower than in the general labour market.

Employment in air transport support occupations is vulnerable to changing general economic conditions and occasional changes in transportation and policy regulations. There is little seasonal variation in employment and little part-time work, compared with other occupations. Changing technology has generally favoured employment in this occupational group.

Earnings

Pay ranges vary greatly compared with most occupations. Depending on years of experience and on the supervisory aspects of the position, annual salaries range from $15,828 (trainees) to $65,000 (senior controllers in management positions). The National Graduate Survey reported 1984 average annual earnings of $26,800 for 1982 graduates who had been working in this occupation two years.

Locomotive Operating Occupations

9131

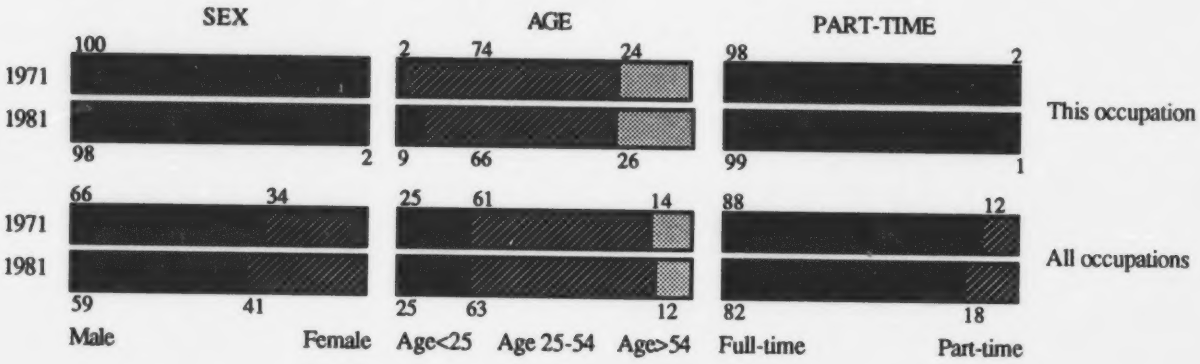
Employment Trends and Projections

	Employment			Average Annual Growth Rate (%)		
	1981	1986	1995	1971-81	1981-86	1987-95
This Occupation	9.200	7.300	7.800	0.6	-4.3	0.7
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation		All Occupations
	1987-95	% of 1987 Jobs	% of 1987 Jobs
Net New Job Openings	400	5.4	11.1
Replacement Openings	4.600	62.4	49.2
Total Job Openings	5.000	67.8	60.3

CENSUS - 1971 and 1981 (%)



1981 CENSUS - Main Industries of Employment (%)

Trans + Stor + Comm + Util (91) - Rail Transport (90)	Manufacturing (4) - Primary Metals (2)	Mining (2) - Mining-Metal Mining (2)

Geographic Distribution of Employment - 1981 (%)

Newfoundland	0.8	Ontario	32.5
Prince Edward Island	0.2	Manitoba	8.2
Nova Scotia	2.6	Saskatchewan	7.4
New Brunswick	4.0	Alberta	10.5
Quebec	19.6	British Columbia	14.2

Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
- College (1981-86)	1	100.0
- University (1981-86)	0	0.0
Trade Vocational Schools (1983/84 only)	0	0.0

For further information, contact:

Employment Services
Canadian Pacific
Room 108
Union Station
Toronto, Ontario M5J 1E8
(416) 863-8038

Canadian Railway Labour Association
Suite 301
100 Metcalfe Street
Ottawa, Ontario K1P 5M1
(613) 236-6945

Locomotive Operating Occupations

9131

Job Environment

Besides the familiar locomotive engineers, this grouping includes yard engineers, road freight engineers, switch engineers and motor operators. Locomotive engineers drive diesel or electric trains. Other responsibilities include test driving and hooking up the trains before a trip, checking safety features, monitoring information about the trip route and reporting damage and needed repairs.

Educational Background and Skills

To become a locomotive engineer, individuals must be 21 years of age or older, of average height and weight and in sound mental and physical health. A high-school diploma is usually required. Locomotive engineers begin as yardworkers, progress to brakeworkers and then become engineers. This process can take from two to four years, during which time the candidate, in addition to acquiring experience, must meet medical requirements and pass a series of mechanical examinations as well as an examination on operating rules. Prospective locomotive engineers require a natural mechanical ability, quick reflexes and good judgement, and must be constantly alert and attentive.

Nature of Supply

The major sources of supply for this occupation are labour force re-entrants (60%) and the secondary school system (40%). Preliminary data indicate that more people are leaving this occupation than are entering it, which suggests that many locomotive engineers advance to higher positions in related occupational areas.

The majority of people in this occupation are men (98%), who work in Ontario and Quebec, although Manitoba has the highest concentration relative to the population base. The average age in this occupation has dropped considerably since 1971, largely because of the increasing number of locomotive engineers under 25. Most locomotive engineers enter the occupation between the ages of 25 and 29 and begin to leave between 55 and 59, for an average career span of 30 years.

Market Conditions and Job Prospects

Employment growth in this group was moderate during the 1970s, but has since declined. Anticipated future growth will be below the average for all occupations, based on the outlook for the rail transport industry, where government restraint, high costs and technological advance are contributing to declines in employment in both passenger and freight transport. Hirings resulting from replacement of personnel lost through death and retirement are expected to be above average and will account for most upcoming job opportunities.

Employment of locomotive engineers is largely confined to the rail transportation industry and, consequently, is very sensitive to fluctuations in the overall business climate. Seasonal variation has little effect on employment, and part-time work is scarce compared with other occupations. Changing technology in the work place has made a dual impact on employment; some changes have added to the workload of engineers, while others have lessened the need for their services.

Technological improvements include intermodal services, computerized tracking systems and operating systems, electronic inspection devices and on-board diagnostics.

Earnings

Wages in this occupational group range from $80.00 to $140 for an eight-hour day or for 100 miles travelled. Pay scales for yard, freight and passenger service all vary, midnight yard service paying the highest and passenger service paying the lowest.

Deck Officers 9151

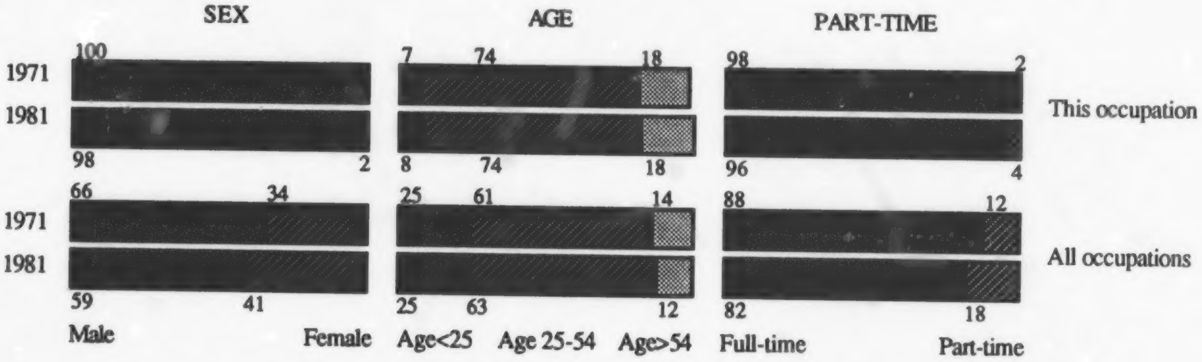
Employment Trends and Projections

	Employment 1981	Employment 1986	Employment 1995	Average Annual Growth Rate (%) 1971-81	Average Annual Growth Rate (%) 1981-86	Average Annual Growth Rate (%) 1987-95
This Occupation	5.600	5.100	5.800	1.1	-1.6	1.4
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation 1987-95	This Occupation % of 1987 Jobs	All Occupations % of 1987 Jobs
Net New Job Openings	600	11.9	11.1
Replacement Openings	3.100	59.2	49.2
Total Job Openings	3.700	71.2	60.3

CENSUS - 1971 and 1981 (%)



1981 CENSUS - Main Industries of Employment (%)

Trans+Stor+Comm+Util (72) - Water Transport (70) - Misc Transport (1)	Public Administration (14) - Federal Admin (13) - Provincial Admin (1)	Manufacturing (4) - Petroleum+Coal Prod (1) - Food+Beverages (1) - Wood (1)

Geographic Distribution of Employment - 1981 (%)

Newfoundland	8.4	Ontario	16.0
Prince Edward Island	1.7	Manitoba	1.0
Nova Scotia	9.3	Saskatchewan	0.1
New Brunswick	3.3	Alberta	0.6
Quebec	20.3	British Columbia	38.7

Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
- College (1981-86)	70	74.5
- University (1981-86)	9	9.6
Trade Vocational Schools (1983/84 only)	15	16.0

Deck Officers

9151

Job Environment

Deck officers include ship masters, mates, pilots, navigators and other ship officers, who transport passengers and cargo on oceans and inland waters, set the ship's course, use navigational aids, supervise operations, inspect cargo movement and manage the deck crew. They work variable, long hours and travel for extended periods. The work area on board ship is typically in indoor constrained surroundings.

Educational Background and Skills

The entrance requirements for these occupations depend on the specific occupation (ship master, ship mate, ship pilot, ferryboat master, or tugboat captain). Although there is no specific educational requirement for a ship master, graduates of a three-year community college program in marine technology navigation are preferred. Certification by Transport Canada is compulsory. The duration of on-the-job training varies by type of certification (master mariner, ocean navigator, coastal navigator), but may last from 36 to 90 months. For ship mates, the training time is shorter, 24 to 60 months, plus related experience at sea.

Nature of Supply

The major sources of new entry into these occupations are labour force re-entrants and the community college system.

At the time of the 1971 census and again in 1981, all deck officers were men, with most working in British Columbia (27%) and Quebec (20%). The highest concentration of officers, relative to the population base, was in Newfoundland. The average age of deck officers has varied only marginally since 1971. The majority of individuals enter these occupations between the ages of 25 and 29 and begin leaving between 55 and 59, for an average career of 30 years.

Market Conditions and Job Prospects

Employment growth in this group was moderate during the 1970s but has since declined. Projected future growth is at the occupational average. Hirings resulting from the replacement of workers lost through death and retirement are expected to be higher than the average, and will make up a large proportion of the 3,700 new jobs anticipated over the projection period.

Labour market conditions for deck officers improved in 1986 over the preceding few years, but they are still not as favourable as they were prior to the 1981-1982 recession. Relative to labour market conditions for other occupations, this group ranks below average, having higher-than-average unemployment rates and relatively few hard-to-fill vacancies at Canada Employment Centres.

Because employment in this occupational group is mainly concentrated in the water transportation industry, it fluctuates with changes in the economic climate. Seasonal variation is another employment trend, summer and fall showing the highest levels of employment. Changing technology has not affected the employment share of this group.

Earnings[1]

Pay ranges in this occupational group vary according to the type and size of ship, nature and responsibility of the position, and length of time at sea. Annual salaries range from $25,000 to $64,000, first officers earning a weekly average salary of $680. The National Graduate Survey reported 1984 average annual earnings of $43,583 for 1982 community college graduates working in this field.

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[1] Labour Canada, *1985 Wages and Working Conditions in Canada*, 1985.

Engineering Officers, Ship

9153

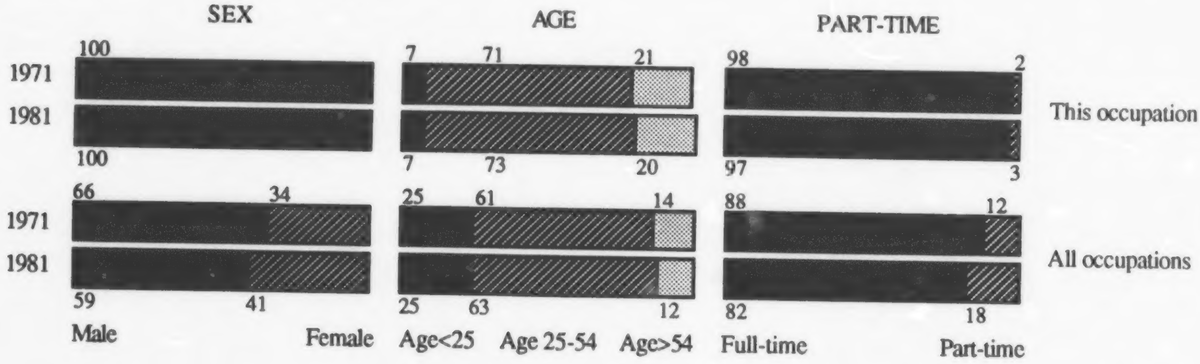
Employment Trends and Projections

	Employment 1981	Employment 1986	Employment 1995	Average Annual Growth Rate (%) 1971-81	Average Annual Growth Rate (%) 1981-86	Average Annual Growth Rate (%) 1987-95
This Occupation	2,900	2,700	3,000	-0.4	-1.7	1.4
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation 1987-95	This Occupation % of 1987 Jobs	All Occupations % of 1987 Jobs
Net New Job Openings	300	12.0	11.1
Replacement Openings	1,600	59.7	49.2
Total Job Openings	1,900	71.7	60.3

CENSUS – 1971 and 1981 (%)



1981 CENSUS – Main Industries of Employment (%)

Trans + Stor + Comm + Util (64)
- Water Transport (63)

Public Administration (16)
- Federal Admin (14)
- Provincial Admin (2)

Manufacturing (13)
- Food + Beverages (8)
- Shipbuilding + Repair (2)

Geographic Distribution of Employment – 1981 (%)

Newfoundland	13.9	Ontario	15.3
Prince Edward Island	3.1	Manitoba	0.4
Nova Scotia	17.9	Saskatchewan	
New Brunswick	4.6	Alberta	0.4
Quebec	17.5	British Columbia	26.6

For further information, contact:

Canadian Institute of Marine Engineering
Suite 706
116 Albert Street
Ottawa, Ontario K1P 5G3
(613) 234-3374

Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
- College (1981-86)	41	74.5
- University (1981-86)	2	3.6
Trade Vocational Schools (1983/84 only)	12	21.8

Engineering Officers, Ship

9153

Job Environment

This occupational group includes engineering assistants or mechanics as well as marine-engineer officers. The latter operate, install and repair the main ship engines, supervise and co-ordinate the activities of the engine room crew and inspect the engines and other mechanical and electrical equipment. The work environment is indoors in an isolated setting and involves exposure to noise, odours and other hazards requiring the use of safety equipment and clothing.

Educational Background and Skills

The minimum educational requirement for this occupation is secondary school graduation. To then qualify as an engineer officer, candidates must complete either a three-year community college program in marine engineering technology or obtain four years of experience as a machinist in marine engineering or three to four years of experience in an engine room aboard a ship as an oiler, fireman, engineer assistant or mechanic. Certification, which is compulsory, is awarded by the Canadian Coast Guard, Transport Canada.

Nature of Supply

The major source of new entry into the occupation is labour force re-entrants who meet the educational qualifications and begin on-the-job training. The second most important source of new entrants is community college graduates specializing in mechanical engineering. Preliminary data indicate that people entering the occupation will approximately equal the number leaving it.

At the time of the 1971 and 1981 censuses, almost all marine-engineer officers were men. The greatest number work in British Columbia (26%), although the highest concentrations relative to population are in Newfoundland, Prince Edward Island and Nova Scotia. The average age (42) as well as the age structure of the occupation have varied little since 1971. The majority of engineer officers enter the occupation between the ages of 25 and 29 and leave between 50 and 54, for a slightly shorter-than-average career of 25 years.

Market Conditions and Job Prospects

Employment growth in this group was below average during the 1970s, and remained below average during the early 1980s. The projected future growth rate is equal to that for other occupations. Replacement of personnel lost owing to death and retirement is expected to be slightly above the average for all occupations.

Labour market conditions for marine-engineer officers improved slightly in 1986 over the preceding few years, but they are still not as favourable as they were prior to the 1981-1982 recession. Relative to labour market conditions for other occupations, they rank below average, as reflected in the above-average unemployment rates.

Because employment in this occupational group is concentrated in the water transportation industry, it is susceptible to fluctuations in the economy. Seasonal variation is above-average; employment peaks occur during the summer months. Little part-time work is available in this occupation, compared with others. Changing technology, while making the marine-engineer's job easier, is not likely to affect employment levels.

Earnings[1]

Pay ranges for this occupational group depend on seniority, travelling time and the supervisory aspects of the position, and range from $25,000 to 60,000 annually. The National Graduate Survey reported 1984 average annual earnings of $37,000 for 1982 community college graduates working in this occupation.

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[1] Labour Canada, *Wages and Working Conditions in Canada*, 1985.

Bus Drivers

9171

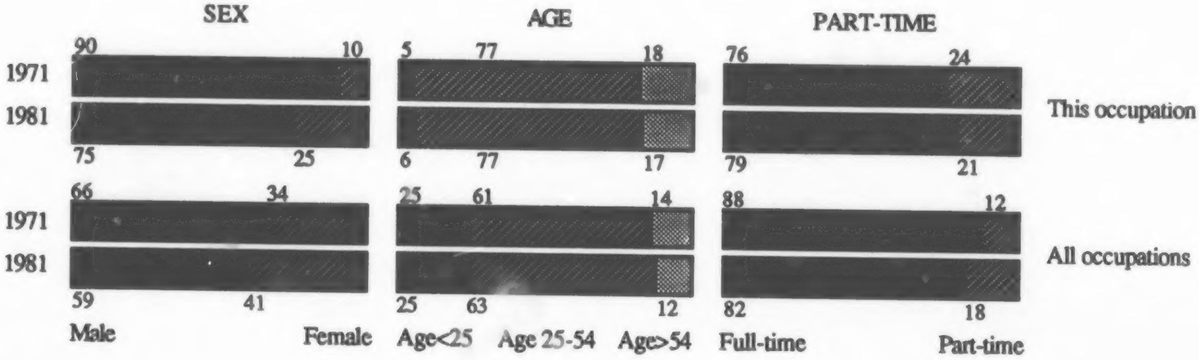
Employment Trends and Projections

	Employment 1981	Employment 1986	Employment 1995	Average Annual Growth Rate (%) 1971-81	Average Annual Growth Rate (%) 1981-86	Average Annual Growth Rate (%) 1987-95
This Occupation	49,300	59,000	63,400	5.0	3.6	0.9
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation 1987-95	This Occupation % of 1987 Jobs	All Occupations % of 1987 Jobs
Net New Job Openings	4,200	7.1	11.1
Replacement Openings	23,300	39.3	49.2
Total Job Openings	27,500	46.4	60.3

CENSUS – 1971 and 1981 (%)



1981 CENSUS – Main Industries of Employment (%)

Trans+Stor+Comm+Util (79)	Services (16)	Public Administration (3)
- Misc Transport (45)	- Education (14)	- Municipal+Oth Gov't (3)
- Urban Transit (35)		

Geographic Distribution of Employment – 1981 (%)

Newfoundland	1.6	Ontario	34.3
Prince Edward Island	0.7	Manitoba	4.6
Nova Scotia	3.1	Saskatchewan	4.6
New Brunswick	2.5	Alberta	11.3
Quebec	28.4	British Columbia	8.8

Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
- College (1981-86)	21	14.5
- University (1981-86)	47	32.4
Trade Vocational Schools (1983/84 only)	77	53.1

Bus Drivers

9171

Job Environment

This occupational group includes all types of bus drivers, including school bus drivers. Besides transporting passengers, they collect fares, keep simple clerical records and answer questions from passengers on scheduling. Their work environment is a clean, well-lit, heated vehicle. As junior personnel, bus drivers work shifts, sometimes split shifts.

Educational Background and Skills

Secondary school graduation is not a prerequisite in this occupation. However, prospective bus drivers must be at least 21 years of age and in good health, and possess a valid driver's licence as well as a good driving record. They will have to pass qualifying examinations and undergo a three- or four-week on-the-job training program. Bus drivers should be emotionally stable, have patience and be able to deal pleasantly with people.

Nature of Supply

The major sources of entrants to this occupation are secondary school graduates and people entering the labour force from the household sector. Preliminary data indicate that the flow of people into this occupation from related ones roughly matches the flow of people leaving the occupation.

Although this occupational group has been male-dominated in the past, an increasing number of women became bus drivers in the 1970s and early 1980s. The majority of drivers work in Quebec and Ontario, although the highest concentrations of workers are in Prince Edward Island and Alberta. The average age of bus drivers declined marginally between 1971 (43 years of age) and 1981 (41 years of age), because of the increasing number under 25 and the declining number over 54. The majority of bus drivers enter the occupation between the ages of 30 and 34 and begin to leave between 60 and 64, for an average career of 30 years.

Market Conditions and Job Prospects

Employment in this group grew quite rapidly during the 1970s and has continued growing steadily. Current projections call for less-than-average growth. Hirings resulting from replacement of workers lost through death and retirement are expected to be slightly below average, although they will still account for the majority of job openings. A total of 27,500 additional bus drivers will be required over the next eight years.

Employment for this occupational group is concentrated in the transportation industry, and is therefore sensitive to growth in this sector. Seasonal variation in employment exists, especially among school bus drivers, and part-time work is slightly more common than in other occupations. Changing technology does not affect employment in this occupation, as up to now it has provided no substitute for a driver. The normal path of advancement for drivers showing leadership is promotion to inspector, dispatcher, traffic supervisor or an administrative position.

Earnings

Drivers can expect a steady, above-average income with a high degree of security. Although pay ranges vary slightly according to the community, they are generally higher in urban areas. Annual earnings average $30,000. Since the hours become more convenient and steadier as seniority increases, the average operator can expect to maintain these earnings until retirement.

Truck Drivers

9175

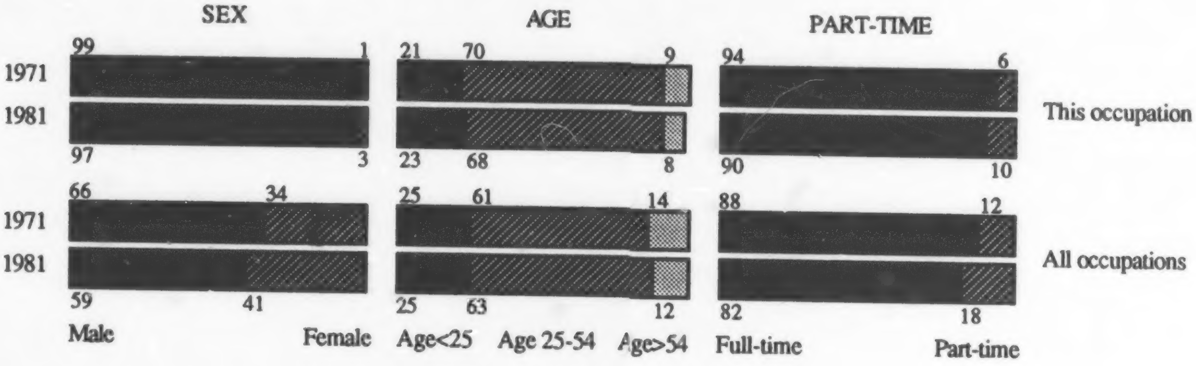
Employment Trends and Projections

	Employment			Average Annual Growth Rate (%)		
	1981	1986	1995	1971-81	1981-86	1987-95
This Occupation	248,200	241,500	267,700	2.9	-0.5	1.3
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation		All Occupations
	1987-95	% of 1987 Jobs	% of 1987 Jobs
Net New Job Openings	25,600	10.6	11.1
Replacement Openings	101,300	41.8	49.2
Total Job Openings	126,900	52.4	60.3

CENSUS - 1971 and 1981 (%)



1981 CENSUS - Main Industries of Employment (%)

Trans+Stor+Comm+Util (40)
- Misc Transport (36)
- Water+Oth Utilities (1)

Trade (21)
- Wholesale Trade (13)
- Retail Trade (8)

Manufacturing (16)
- Food+Beverages (5)
- Non-Met Mineral Prod (3)
- Wood (1)

Geographic Distribution of Employment - 1981 (%)

Newfoundland	1.7	Ontario	34.5
Prince Edward Island	0.5	Manitoba	4.2
Nova Scotia	2.9	Saskatchewan	3.5
New Brunswick	2.6	Alberta	12.5
Quebec	25.6	British Columbia	11.8

Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distributior
Post-Secondary Education System		
- College (1981-86)	95	11.7
- University (1981-86)	62	7.6
Trade Vocational Schools (1983/84 only)	656	80.7

Truck Drivers

9175

Job Environment

This occupational group includes city delivery drivers, dump truck drivers, tow truck drivers, moving van drivers and workers who drive trucks or tractor-trailer combinations over long or short distances. They work in every industry and many own their own vehicles. Part of their job is to inspect and prepare the vehicle and load and pick up delivery documents. Loading and unloading is usually handled by terminal and warehouse workers, although in some cases the driver may have to do it. Truck drivers also need to know first aid, dangerous goods regulations, safety regulations, the rules of the road and defensive driving. Their work week, depending on the nature of the job, is 40 to 60 hours long; working conditions are generally not more hazardous than in other industrial occupations.

Educational Background and Skills

Individuals interested in becoming truck drivers should be at least 18 years of age and have Grade 10 education, a valid chauffeur's licence, a good driving record and preferably some training in automotive mechanics. Various provincial trucking associations, safety organizations and vocational schools conduct training courses. In some provinces, there are further requirements, such as the ability to handle specific types of trucks and combination vehicles and conformity with rigid medical standards.

Nature of Supply

Many move into this occupation from positions such as yard worker or dock handler with a transport company or private fleet. Immigration and the military are minor suppliers of labour to this occupation.

In the past, most drivers have been men, although the number of women drivers is growing. The majority of drivers work in Quebec (26%) and Ontario (34%), although the highest concentration is in the province of Alberta (15 truck drivers per 1,000 people). The average age (35) as well as the age structure have changed only marginally since 1971. Most individuals enter the occupation between the ages of 20 and 24 and begin to leave between 40 and 44, for an average career of 20 years, slightly less than the average.

Market Conditions and Job Prospects

The employment outlook for this occupation calls for about average growth over the next eight years, based on employment prospects for the truck transport, trade and manufacturing industrial sectors. This would parallel the 1970s situation, where employment growth rates were close to those for the labour market as a whole.

Over the projection period, 129,000 additional workers will be required to fill new jobs and to replace workers leaving because of retirement, death and emigration, or to return to the school system.

Labour market conditions for truck drivers have not changed much over the past several years. Despite reasonable employment growth rates, an even higher rate of growth in the supply of truck drivers has led to some unemployment.

Because employment in this occupational group is spread throughout all industries, with some concentration in transportation and trade, it is only mildly susceptible to fluctuations in the business climate. Part-time work is moderately available and seasonal variation in employment is limited. Changing technology is not an issue in this occupational group.

Earnings[1]

Pay ranges for truck and transport drivers vary more than in most occupations and depend on whether the driver begins by driving a light or heavy vehicle or starts in some related type of work. In 1984, invoice and order checkers averaged $7.00 to $12.00 an hour; light truck drivers, $11.00 an hour; and heavy truck drivers, $11.20. Owner and operator transport drivers can earn an average of between $30,000 and $50,000 a year. In some cases, entrepreneurial truckers can even exceed these amounts.

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[1] Labour Canada, *Wage Rate Survey*, 1985.

Printing Press Occupations

9512

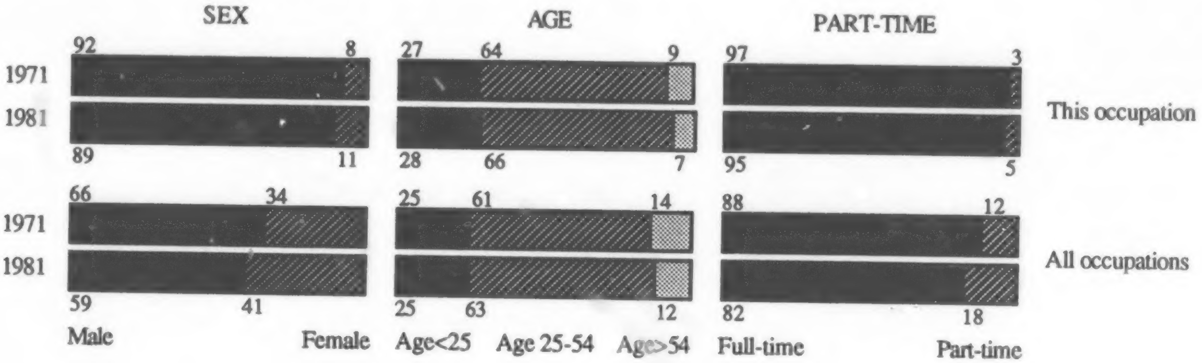
Employment Trends and Projections

	Employment 1981	Employment 1986	Employment 1995	Average Annual Growth Rate (%) 1971-81	Average Annual Growth Rate (%) 1981-86	Average Annual Growth Rate (%) 1987-95
This Occupation	22,600	26,800	28,000	5.8	3.5	0.5
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation 1987-95	This Occupation % of 1987 Jobs	All Occupations % of 1987 Jobs
Net New Job Openings	1,000	3.7	11.1
Replacement Openings	5,600	20.9	49.2
Total Job Openings	6,600	24.6	60.3

CENSUS – 1971 and 1981 (%)



1981 CENSUS – Main Industries of Employment (%)

Manufacturing (84)	Services (7)	Public Administration (4)
- Printing + Publishing (74)	- Education (3)	- Federal Admin (2)
- Paper Products (6)	- Business Services (2)	- Provincial Admin (1)

Geographic Distribution of Employment – 1981 (%)

Newfoundland	0.5	Ontario	43.2
Prince Edward Island		Manitoba	3.9
Nova Scotia	1.4	Saskatchewan	1.7
New Brunswick	1.1	Alberta	6.2
Quebec	34.9	British Columbia	7.6

Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
- College (1981-86)	39	42.9
- University (1981-86)	12	13.2
Trade Vocational Schools (1983/84 only)	40	44.0

Printing Press Occupations

Job Environment

Commercial press operators, flexographic press operato and newspaper press operators are some of the occupations in this group. Press operators run letterpresses, offset presses, web offset presses and other presses. Thei work in preparing a press may include transferring photographed image to a printing plate, installing the plat on the machine, applying ink to the plate and sometime making fine mechanical adjustments. On a large press, th operator may be in a supervisory position. Press operator work indoors and are constantly moving aroun machinery.

Educational Background and Skills

Although prospective printing press operators can obtai their basic preparation in high school, additional trainin is available through community college programs an through apprenticeship programs lasting three to fou years.

Nature of Supply

The major sources of new supply to this occupation ar graduates from secondary school and apprenticeshi programs. Labour force re-entrants, immigrants, and postsecondary graduates are also potential sources of ne supply. The number of people leaving these occupation for related ones is expected to exceed marginally the number coming from other occupations, which reduces th supply level and suggests that for many, these occupation represent entry-level positions in their careers.

Most press operators are men working in Ontario an Quebec. The average age (34) as well as the age structur of this occupation have remained relatively stable sinc 1971. A typical career as printing press operator lasts, o average, 35 years, with entry normally occurring betwee the ages of 20 and 24.

Market Conditions and Job Prospects

The employment outlook for these occupations calls fo below-average growth into the mid-1990s, based on growt prospects for the printing and publishing sector. This forecast is a departure from trends during the 1970s and earl 1980s, when employment grew faster than averag Approximately 6,600 press operators will be needed to fi new jobs and to replace personnel who leave becaus of death or retirement or who return to the household o educational system.

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Employment trends differ for the various printing specialties. Little growth is anticipated for lithographic press operators. because offset lithography is now the main process used in the commercial printing industry. Likewise. employment growth in the area of flexographic printing (used in the production of flexible packaging and in imprinting) is expected to be modest. Traditional printing processes that incorporate certain aspects of lithography are not likely to stimulate employment in the future. Letterpress printing has declined and will not contribute significantly to employment growth in this field.

Labour market conditions for press operators improved in 1986 over preceding years. but have still not fully recovered from the 1981-1982 recession. Compared with labour market conditions at large. they are slightly more favourable and will continue to improve as job opportunities become more available.

Employment in this occupational group is not especially vulnerable to changes in business conditions. New technology affecting high-speed equipment may curtail employment growth in this group. There tends to be little seasonal variation in employment and little part-time work. compared with other occupations.

Earnings

Wages for press operators range from the respective provincial statutory minimum rates to the higher union salaries. The average annual wage of experienced operators is about $28.000. Some workers earn as much as $48.000. depending on their experience. the position and the size of the company. The Graphic Communications International Union lists the following 1987 wage rates for printing press occupations.

	Hourly range	Weekly range
Feeder		
first year	$14.20 – $14.71	$497.00 – $514.85
second year	14.79 – 15.54	517.65 – 543.90
Journeyman		
First Pressman	18.19 – 26.71	636.65 – 934.85
Second Pressman	21.99 – 23.81	769.95 – 833.35
Press Tender	15.14	529.90

The National Graduate Survey reported average 1984 annual earnings of $14.600 for 1982 community college graduates working in these occupations.

Photoengraving and Related Occupations 9515

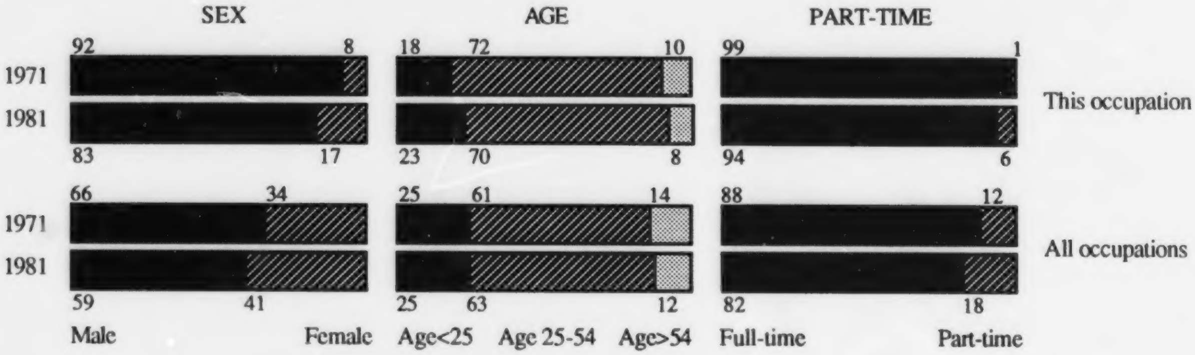
Employment Trends and Projections

	Employment 1981	Employment 1986	Employment 1995	Average Annual Growth Rate (%) 1971-81	Average Annual Growth Rate (%) 1981-86	Average Annual Growth Rate (%) 1987-95
This Occupation	2,600	3,100	3,300	6.6	3.9	0.5
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation 1987-95	This Occupation % of 1987 Jobs	All Occupations % of 1987 Jobs
Net New Job Openings	100	3.7	11.1
Replacement Openings	900	29.5	49.2
Total Job Openings	1,000	33.2	60.3

CENSUS – 1971 and 1981 (%)



1981 CENSUS – Main Industries of Employment (%)

- Manufacturing (87)
  - Printing + Publishing (79)
  - Paper Products (2)
  - Electrical Products (2)
- Services (6)
  - Business Services (4)
- Trade (2)
  - Wholesale Trade (2)

Geographic Distribution of Employment – 1981 (%)

Newfoundland		Ontario	47.7
Prince Edward Island		Manitoba	4.2
Nova Scotia	0.6	Saskatchewan	1.6
New Brunswick	0.6	Alberta	4.8
Quebec	34.9	British Columbia	5.1

Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
– College (1981-86)	10	33.3
– University (1981-86)	5	16.7
Trade Vocational Schools (1983/84 only)	15	50.0

Photoengraving and Related Occupations 9515

Job Environment

This occupational group includes colour finishers, engravers, etchers, pantographers and scanner operators. Photoengravers prepare printing plates through a process which includes photographing, separating colours by means of an electronic scanner, stripping, etching and proofing. The work is very exacting and demands great concentration. Often photoengravers work as members of a team contributing their skills to the fabrication of printing plates or cylinders. Their work environment is inside year-round, usually in clean and pleasant surroundings.

Educational Background and Skills

Individuals wishing to enter this occupation must take an apprenticeship program, which lasts about four years. To enter the program an individual must be at least 16 years old and have Grade 10. The apprentice may be required to complete courses in printing or graphics offered at a community college or trade/vocational school.

Nature of Supply

The secondary school system and apprenticeship programs are the main channels into this occupation. The post-secondary education system, labour force re-entrants and immigrants also augment the labour supply. Preliminary estimates of inter-occupational mobility indicate that the movement out of these occupations to related ones will marginally exceed the influx from other occupations, suggesting that for many, these jobs represent entry-level positions in their careers.

Although men still outnumber women in this occupation, the number of women choosing this career has been steadily increasing. The majority of photoengravers are located in Ontario and Quebec. The average age (35) as well as the age structure have remained stable since 1971.

Market Conditions and Job Prospects

The employment outlook for this occupation calls for below-average growth over the forecast period, based on employment patterns in the printing and publishing sector. This contrasts with the situation in the 1970s and early 1980s, when employment grew faster than average. The demand for photoengravers will reach 1,000 during the next eight years, with the majority of jobs resulting from vacancies left by departing personnel.

Labour market conditions in the last few years have not been as favourable as for other occupations. The unemployment rate has been above average. While the situation did improve slightly in 1986, conditions were better prior to the 1981-1982 recession.

Advances in technology have made retraining necessary at certain stages of the photoengraving process. New laser technology may create employment opportunities for photoengravers who specialize in its application. Moderate employment growth is expected for electronic pre-press technicians, who operate computer-controlled devices that perform four-colour stripping and retouching operations. Employment in this group is only mildly affected by changes in the business climate. There is no distinct seasonal pattern of employment and very little available part-time work.

Earnings

Photoengravers' wages vary regionally and according to the tasks performed. The Graphics Communication International Union lists the following 1987 wage rates for selected photoengraving jobs in the printing industry.

	Hourly Rate	Weekly Rate
Platemakers	$20.87	$730.45
Negative Assemblers, Layouters, Opaquers and Strippers	20.87	730.45
Plate Grainers	17.69 – 18.87	619.15 – 660.45
Camera Operators		
– black and white	20.87	730.45
– color separation	21.44	750.40

The National Graduate Survey reported 1984 average annual earnings of $14,923 for 1982 community college graduates who had been working in this occupational area two years.

Power Station Operators 9531

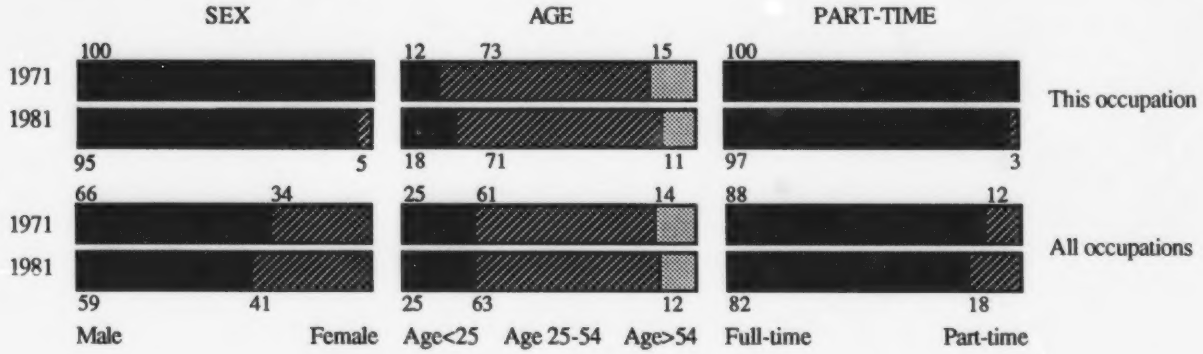
Employment Trends and Projections

	Employment			Average Annual Growth Rate (%)		
	1981	1986	1995	1971-81	1981-86	1987-95
This Occupation	7,600	7,200	7,600	4.1	-1.1	1.0
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation		All Occupations
	1987-95	% of 1987 Jobs	% of 1987 Jobs
Net New Job Openings	600	8.6	11.1
Replacement Openings	3,100	44.2	49.2
Total Job Openings	3,700	52.9	60.3

CENSUS – 1971 and 1981 (%)



1981 CENSUS – Main Industries of Employment (%)

Trans + Stor + Comm + Util (72)
- Electric Power (68)
- Telephone + Telegraph (2)
- Water + Oth Utilities (1)

Manufacturing (13)
- Pulp + Paper (3)
- Chemicals + Chem Prod (2)
- Food + Beverages (1)

Services (5)
- Business Services (2)
- Hospitals (2)

Geographic Distribution of Employment – 1981 (%)

Newfoundland	6.0	Ontario	39.6
Prince Edward Island	0.4	Manitoba	7.1
Nova Scotia	4.1	Saskatchewan	3.7
New Brunswick	3.4	Alberta	8.8
Quebec	15.9	British Columbia	8.9

Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
- College (1981-86)	41	21.0
- University (1981-86)	55	28.2
Trade Vocational		
Schools (1983/84 only)	99	50.8

Power Station Operators

9531

Job Environment

This unit includes generating station operators, hydro-station operators, nuclear-reactor operators, power-plant engineers and turbine engineers, who control the equipment in powerplants that generate electricity. They are responsible for ensuring that electricity is generated, transmitted and distributed. This involves monitoring and controlling equipment in remote-controlled substations, and operating standby generating plants and electrical power conversion systems. The nature of work exposes workers to hazards which require the use of safety equipment and clothing.

Educational Background and Skills

A power station operator must be technically inclined and safety conscious. The minimum educational requirement in this occupation is secondary school graduation. Additional training is also required in the form of an apprenticeship, which normally lasts two years and includes periods of formal instruction. For some specializations such as nuclear power operator, the training period is longer. Most individuals enter this occupation only after accumulating some related work experience.

Nature of Supply

The major sources of new supply to this occupation are apprentices and individuals who move into this occupation from related ones. Other sources of supply include post-secondary graduates, labour force re-entrants and immigrants.

Most power station operators are men and most work in Ontario and Quebec. The highest concentration of operators per capita, however, is in Newfoundland.

The average age (37) in this occupation has remained fairly stable since 1971, despite a shift in the age structure caused by an increase in the number of people under age 25. A power station operator's career normally spans 25 to 30 years, entry normally occurring between the ages of 20 and 30.

Market Conditions and Job Prospects

Rapid employment growth in the 1970s has eased considerably in the 1980s to a below-average rate. Current projections indicate employment will increase at the modest pace of 8.6% over the forecast period. Approximately 3,700 openings will occur in the next eight years. Replacement requirements will provide an average number of opportunities compared to other occupations, as indicated by the proportion of employees in the 54-plus age category. However, replacement openings will still outnumber new jobs.

These occupations are characterized by favourable labour market conditions. In 1986 conditions were better than in most other occupations, as indicated by low levels of unemployment in this area.

Since employment for power station operators is concentrated in the electric power industry (68%), the strong U.S. demand for electricity should provide numerous employment opportunities in the short term. If foreign demand for electricity slackens, however, job prospects may weaken in the long term. Employment in this field is moderately susceptible to economic conditions. There are no strong seasonal patterns and the incidence of part-time work is insignificant.

Earnings

The earnings of power station operators vary according to the type of job they hold and the location and size of the organization that employs them. Labour Canada[1] reported the following 1985 hourly wage rates for power station operators.

	Range (1st to 9th Decile)[2]	Average
Hydro Electric Station Operator	$14.32 — $17.23	$16.04
Power-Switchboard Operator	13.99 — 18.01	16.95
Substation Operator	15.35 — 20.63	18.22

The National Graduate Survey reported 1984 average annual earnings of $30,602 for 1982 university graduates working in this occupational area. The equivalent rate for 1982 community college graduates was $29,548.

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[1] Labour Canada, *Wages and Working Conditions in Canada*, 1985.

[2] This means that of those surveyed, 10% earned less than the minimum rate and 10% earned more than the maximum rate reported.

Stationary Engine and Utilities Equipment Operating and Related Occupations

9539

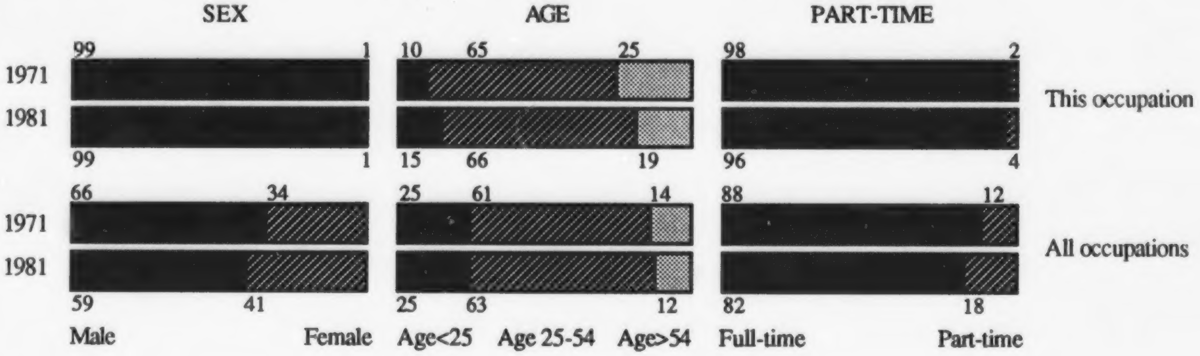
Employment Trends and Projections

	Employment			Average Annual Growth Rate (%)		
	1981	1986	1995	1971-81	1981-86	1987-95
This Occupation	34,400	33,600	36,700	0.8	-0.5	1.0
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation		All Occupations
	1987-95	% of 1987 Jobs	% of 1987 Jobs
Net New Job Openings	2,900	8.5	11.1
Replacement Openings	23,700	70.1	49.2
Total Job Openings	26,500	78.6	60.3

CENSUS – 1971 and 1981 (%)



1981 CENSUS – Main Industries of Employment (%)

Manufacturing (37)	Trans+Stor+Comm+Util (18)	Services (16)
- Pulp+Paper (7)	- Water+Oth Utilities (6)	- Hospitals (8)
- Food+Beverages (7)	- Electric Power (5)	- Education (5)
- Chemicals+Chem Prod (4)	- Pipelines (2)	

Geographic Distribution of Employment – 1981 (%)

Newfoundland	2.8	Ontario	34.5
Prince Edward Island	0.4	Manitoba	3.1
Nova Scotia	4.1	Saskatchewan	4.1
New Brunswick	3.3	Alberta	12.3
Quebec	25.4	British Columbia	10.1

Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
- College (1981-86)	80	18.9
- University (1981-86)	86	20.3
Trade Vocational Schools (1983/84 only)	257	60.8

Stationary Engine and Utilities Equipment Operating and Related Occupations

9539

Job Environment

Air-conditioning operator, gas-compressor operator, stationary engineer and pipeline gauger are typical occupations in this group. Stationary engineers operate and maintain equipment such as steam turbines, steam boilers, instrumentation and process controls, air compressors, refrigerating systems, water conditioning systems, efficient control and chemical recovery systems. Other duties include power and process operation, maintenance and administration of safety and efficiency standards. Stationary engineers must be familiar with a variety of instruments, hand tools and power tools. Their work involves exposure to high temperatures and contact with oil, grease, chemicals and odours.

Educational Background and Skills

The minimum educational requirement in this occupation is graduation from a trade/vocational or institute of technology program that emphasizes the operation, maintenance and repair of light and heavy equipment. After graduation, prospective stationary engineers must undergo a period of on-the-job training, followed by a written examination qualifying them for a fourth-class certificate. Further on-the-job training and examinations are necessary to qualify for the third-, second- and first-class certificates.

Nature of Supply

The primary source of new supply to this occupation is the post-secondary education system. Other sources of supply include labour force re-entrants, immigrants and persons leaving the military. Preliminary estimates of inter-occupational mobility indicate that movements into this occupation from related occupations will marginally exceed the exits to other occupations, suggesting that for many, this occupation represents an upper level on their career ladders.

Men dominate employment in this occupational area. Over the 1971 to 1981 period, the average age dropped from 44 to 40. Over the same period, the number of stationary engineers under the age of 25 increased, while the number over 54 declined. A typical career as a stationary engineer spans, on average, between 35 and 40 years, with entry normally occurring between the ages of 20 and 30.

Market Conditions and Job Prospects

Although employment increased slowly in the 1970s, it declined through the first half of the 1980s. Current projections suggest future employment growth will be in the 8.5% range over the forecast period, resulting in approximately 26,500 job openings. Since an above-average proportion of stationary engineers are in the 54-plus age group, replacement openings will provide the major source of job opportunities. The lower-than-average ratio of unemployment insurance claimants to employment stock indicates that stationary engineers have been experiencing better labour market conditions than in most occupations in the 1980s.

Stationary engineers are concentrated mainly in the manufacturing sector, while some work in the transportation, storage, communications, utilities and services sectors. They can expect fair employment prospects throughout the projection period, because of moderate expansion in these areas. Employment opportunities are moderately affected by changes in the overall economic environment, while seasonal factors appear to have little influence.

Earnings

The National Graduate Survey reported 1984 average annual earnings of $26,812 and $25,793 for 1982 university graduates and community college graduates respectively, who were working in this occupational area two years after graduation.

Radio and Television Broadcasting Equipment Operators 9551

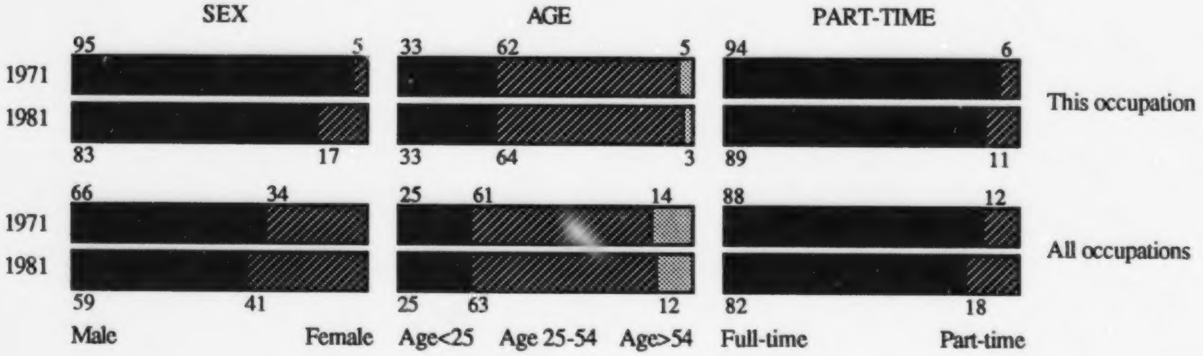
Employment Trends and Projections

	Employment 1981	Employment 1986	Employment 1995	Average Annual Growth Rate (%) 1971-81	Average Annual Growth Rate (%) 1981-86	Average Annual Growth Rate (%) 1987-95
This Occupation	3,900	4,300	4,800	1.0	1.8	1.2
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation 1987-95	This Occupation % of 1987 Jobs	All Occupations % of 1987 Jobs
Net New Job Openings	400	9.7	11.1
Replacement Openings	2,300	53.3	49.2
Total Job Openings	2,700	63.0	60.3

CENSUS – 1971 and 1981 (%)



1981 CENSUS – Main Industries of Employment (%)

Trans + Stor + Comm + Util (68)
- Radio + TV Broadcast (62)
- Telephone + Telegraph (3)

Public Administration (19)
- Federal Admin (12)
- Provincial Admin (4)
- Municipal + Oth Gov't (2)

Services (8)
- Recreation (3)
- Education (2)
- Business Services (2)

Geographic Distribution of Employment – 1981 (%)

Newfoundland	2.6	Ontario	36.2
Prince Edward Island	0.4	Manitoba	4.7
Nova Scotia	6.2	Saskatchewan	4.9
New Brunswick	3.8	Alberta	10.7
Quebec	16.7	British Columbia	12.9

Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
– College (1981-86)	137	71.7
– University (1981-86)	25	13.1
Trade Vocational Schools (1983/84 only)	29	15.2

Radio and Television Broadcasting Equipment Operators 9551

Job Environment

This occupational unit includes broadcast engineers, radio operators, telecasting technicians and videotape recording (VTR) operators. Radio and TV equipment operators electronically record or reproduce pictures or sounds. A variety of equipment is used including videotape recording and sound mixing equipment, video and audio consoles, sound/video synchronizing equipment and broadcast transmitters. At small stations, where specializations are less frequent, operators may gain experience with several pieces of equipment. The hours of work are variable and depend on the requirements of the position. A normal work week is five days and 40 hours.

Educational Background and Skills

The basic educational requirement for entry into these occupations is secondary school graduation. A community college or institute of technology program with emphasis on electronics and radio and television broadcasting is an asset and highly recommended. Whatever the individual's educational background and previous experience, a period of on-the-job training is normally required.

Nature of Supply

The primary source of new supply to this occupation is the post-secondary education system. Labour force re-entrants and immigrants are also lesser sources of new supply. Although inter-occupational mobility can not yet be measured with precision, it is expected that the flow of workers out of this area into related ones will exceed the influx from other occupations, suggesting that, for many, these occupations represent a starting point in their careers.

This occupation is predominately male, although the number of women has increased substantially. Most radio and television operators reside in Ontario and Quebec. The age structure as well as the average age (30) have remained relatively constant since 1971. A typical career in this occupation lasts, on average, 20 years, with entrance normally taking place between the ages of 20 and 24.

Market Conditions and Job Prospects

Employment growth for radio and TV equipment operators is expected to be average over the coming eight years, based on the employment outlook for radio and TV broadcasting and public administration. This forecast departs from the long-term trend observed during the 1970s, when the employment growth in this area trailed behind the labour force at large. Approximately 2,700 jobs will become available in the next eight years, of which replacement openings will account for a significant proportion. Employment in this occupational group may be vulnerable to changing economic conditions. While new technologies, such as cable and video recorders and players, may help create some job opportunities, increasing automation (micro-processor controlled equipment) may have a limiting effect.

Labour market conditions for radio and TV equipment operators were better than average in 1986, as indicated by their low unemployment insurance claimant-to-employment-stock ratio. There is no seasonal employment pattern in these occupations.

Although part-time work is less frequent than in the labour market at large, it has been increasing.

Earnings

Wages in this occupation are negotiated through the collective bargaining process for the 4,950 broadcasting employees and free lances represented by the National Association of Broadcast Employees and Technicians (NABET) Union. Following are the minimum hourly rates of pay for free-lance technicians and operators in January 1986.

Post-Production Sound Mixer	$24.50
Sound Assistant/Boom Operator	20.50
Sound Editor (Features)	24.50
Switcher	20.50
Video Operator/VTR Operator	20.50
VTR Editor (Production)	22.50
Telecine Operator	19.50

The National Graduate Survey reported 1984 average annual earnings of $17,000 for 1982 university graduates working in these occupations two years after graduation. The equivalent earnings for 1982 community college graduates were $22,026.

Sound and Video Recording and Reproduction Equipment Operators 9555

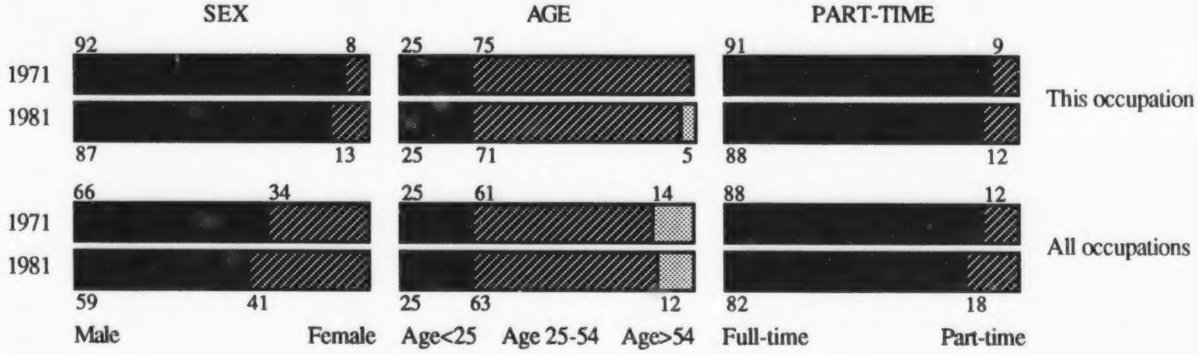
Employment Trends and Projections

	Employment 1981	Employment 1986	Employment 1995	Average Annual Growth Rate (%) 1971-81	Average Annual Growth Rate (%) 1981-86	Average Annual Growth Rate (%) 1987-95
This Occupation	2,200	2,500	2,800	18.9	2.0	1.4
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation 1987-95	This Occupation % of 1987 Jobs	All Occupations % of 1987 Jobs
Net New Job Openings	300	12.2	11.1
Replacement Openings	400	14.1	49.2
Total Job Openings	700	26.2	60.3

CENSUS – 1971 and 1981 (%)



1981 CENSUS – Main Industries of Employment (%)

Trans + Stor + Comm + Util (46)
- Radio + TV Broadcast (45)
- Telephone + Telegraph (1)

Services (38)
- Recreation (20)
- Education (11)
- Misc Services (2)

Manufacturing (8)
- Misc Manufacturing (7)

Geographic Distribution of Employment – 1981 (%)

Newfoundland	0.5	Ontario	27.1
Prince Edward Island	0.2	Manitoba	2.1
Nova Scotia	3.3	Saskatchewan	0.5
New Brunswick	0.7	Alberta	4.7
Quebec	51.4	British Columbia	8.5

Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
– College (1981-86)	46	71.9
– University (1981-86)	0	0.0
Trade Vocational Schools (1983/84 only)	18	28.1

Sound and Video Recording and Reproduction Equipment Operators 9555

Job Environment

Audio engineers, radio recorders, sound editors, and studio technicians record and reproduce sound and video images for radio and television broadcasting. Depending on the specialty, associated duties may include developing and editing film, videotaping and audio recording on tape or disc. The work requires using electronic equipment and therefore involves exposure to noise. A five-day work week of 40 hours based on shift rotations is normal. Overtime is periodically required.

Educational Background and Skills

While secondary school graduation is the basic qualification in this occupation, a community college or institute of technology program with emphasis on television or radio broadcasting is highly recommended and is becoming increasingly essential. A period of on-the-job training may also be required, depending on the individual's educational background and previous experience.

Nature of Supply

Most individuals who enter this occupation are graduates from the post-secondary education system. Other sources of supply include labour force re-entrants and immigrants.

Men dominate this occupation, although the number of women has been increasing. Most video operators work in Quebec and Ontario. The average age (32) as well as the age structure of this occupation have remained fairly stable since 1971. The average career as a video operator spans approximately 25 years, with entrance normally occurring between the ages of 25 and 29.

Market Conditions and Job Prospects

Current projections indicate that employment of sound and video recording operators will increase at an average pace in the forecast period, representing a deceleration in growth, which perhaps reflects the maturity of the industry. A total of 700 job openings will become available within the next eight years. Replacement requirements will be below average, as a very small proportion of operators are in the 54-plus age category. A trend towards automation in the telecommunications industry may have a negative effect on employment prospects in this field.

Labour market conditions in 1986 were better-than-average for sound and video operators. In comparison with most occupations in the labour market, their unemployment insurance claimant-to-employment-stock ratio was lower than average.

Employment prospects in the communications and services sectors, in which these occupations are concentrated, are moderate in the short term due to weakened consumer spending. Economic conditions and seasonal factors have little influence on employment patterns. The incidence of part-time work increased slightly over a 10-year period and was recorded at 12% in 1981.

Earnings

Wages in this occupation are negotiated through the collective bargaining process. Approximately 4,950 broadcasting employees and free-lances are represented by the National Association of Broadcast Employees and Technicians (NABET) Union. The following table shows 1986 minimum hourly rates of pay for free-lance technicians and operators.

Post Production Sound Mixer	$24.50
Sound Assistant/Boom Operator	20.50
Sound Editor (Features)	24.50
Switcher	20.50
Video Operator/VTR Operator	20.50
VTR Editor (Production)	22.50
Telecine Operator	19.50

The National Graduate Survey reported 1984 average annual earnings of $15,011 for 1982 community college graduates who had been working in this occupation two years.

Photographic Processing Occupations

9591

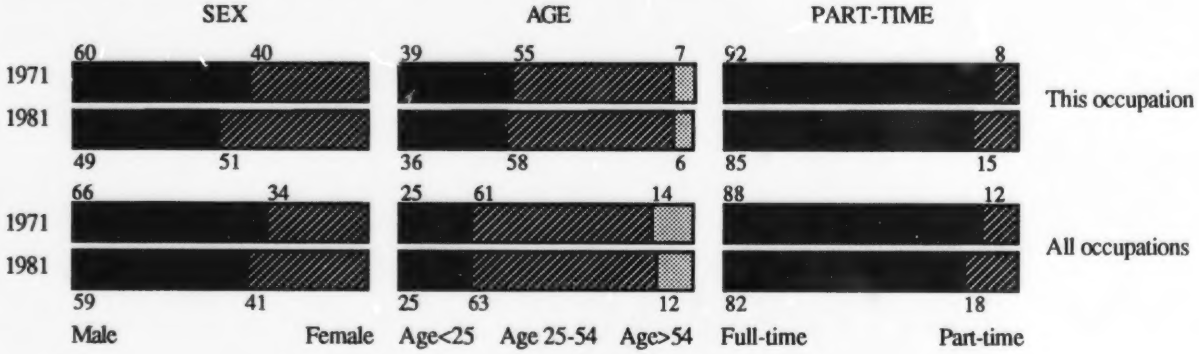
Employment Trends and Projections

	Employment			Average Annual Growth Rate (%)		
	1981	1986	1995	1971-81	1981-86	1987-95
This Occupation	7,400	9,000	10,600	5.7	3.9	1.7
All Occupations				3.2	1.1	1.3

Job Openings

	This Occupation		All Occupations
	1987-95	% of 1987 Jobs	% of 1987 Jobs
Net New Job Openings	1,300	14.3	11.1
Replacement Openings	2,800	29.6	49.2
Total Job Openings	4,100	43.9	60.3

CENSUS – 1971 and 1981 (%)



1981 CENSUS – Main Industries of Employment (%)

Services (69)
- Misc Services (53)
- Recreation (4)
- Hospitals (4)

Manufacturing (19)
- Printing+Publishing (13)
- Misc Manufacturing (4)

Trade (5)
- Retail Trade (4)
- Wholesale Trade (2)

Geographic Distribution of Employment – 1981 (%)

Newfoundland	1.4	Ontario	43.8
Prince Edward Island	0.7	Manitoba	5.7
Nova Scotia	2.2	Saskatchewan	3.1
New Brunswick	1.6	Alberta	9.4
Quebec	17.5	British Columbia	14.7

Potential Supply from Post-Secondary Ed. System

	Annual Average	% Distribution
Post-Secondary Education System		
– College (1981-86)	109	86.5
– University (1981-86)	7	5.6
Trade Vocational Schools (1983/84 only)	10	7.9

Photographic Processing Occupations

9591

Job Environment

This classification includes processors of both still and motion-picture film, such as colour photo printers, enlargers and film and photograph developers. The work environment ranges from mass processing retail outlets to specialized custom photo labs. In the latter case, the personnel is highly skilled and experienced. In all environments, there is some exposure to toxicity and fumes. New techniques used by photo processors include the laser removal of unwanted details from photographs and laser enhancement of photos reproduced from transparencies.

Educational Background and Skills

There are two ways of acquiring the skills necessary to obtain employment in this occupational group. The traditional method is through an apprenticeship, which normally lasts three years and includes some formal instruction. Candidates must be at least 16 years old and have a minimum of Grade 10. The alternative is to complete a community college or institute of technology program in photography.

Nature of Supply

Besides apprentices and post-secondary graduates, other people entering the occupation include labour force re-entrants and immigrants. Preliminary estimates of inter-occupational mobility indicate that the flow of people out of this occupational group to related ones will marginally exceed the flow into the field from other occupations. This suggests that many people enter these occupations at the beginning of their careers.

As of 1981, the number of women in this occupational group was slightly greater than the number of men. The average age (31) as well as the age structure have remained relatively stable since 1971.

The average career lasts approximately 30 to 35 years, with entry normally occurring between the ages of 20 and 24.

Market Conditions and Job Prospects

Employment for photographic processors is mainly concentrated in the services sectors, and to a minor extent in the manufacturing and trade sectors. Based on the outlook in these areas, future employment opportunities appear to be very favourable. Seasonal factors have little influence on employment patterns. The incidence of part-time work has nearly doubled in 10 years, and was recorded at 15% in 1981.

Employment growth advanced at a rapid rate in the 1970s and 1980s. Current projections indicate employment will continue to increase at an above-average rate (14.3%) in the forecast period. This means nearly 1,300 new jobs will become available for photographic processors over the next eight years. Replacement openings (created through retirement and death) will total 2,800, according to current projections.

Labour market conditions for photographic processors have improved in the last several years, although they are not as favourable as prior to the 1981-1982 recession. This occupational group fared better than most in the labour market in 1986, judging by the low estimated unemployment rates.

Technological innovations in photographic processes and equipment have increased the skill requirements in these occupations over the years.

Earnings

The earnings of photographic processors vary according to experience, qualifications, location and place of employment. Estimated hourly wages are $12.00 to $15.00 an hour. Reported 1986 earnings for film developers were $14.79 an hour and for enlargers, $12.87 an hour.

The National Graduate survey reported 1984 average annual earnings of $12,213 for 1982 community college graduates working in these occupations.

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